User Manual	UM 1187
	Group: Controls
	PN: 300040523
	Date: September 2000

MicroTech® Monitor 2.01

For Windows 95/98™

User Manual

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What You Need to Run The Monitor Program

Hardware

The MicroTech **Monitor** for Windows (or **Monitor** for short) application operates on a personal computer with the appropriate associated hardware. Guidelines for the hardware required to operate the **Monitor** software application include the following (minimum requirements):

- Pentium Processor
- 16 MB RAM
- 200 MB hard drive
- SVGA graphics capability
- 1.44 MB (3½") floppy disk drive
- Mouse or Trackball
- RS-232C serial communications port
- Parallel printer port (Optional)
- Printer (Optional)
- (Optional) 9600 bps modem

Software

The following software and associated materials are required:

- Windows 95/98
- **Monitor** software application

Monitor is supplied on one or more 1.44 KB (3½") floppy diskettes. An installation program is provided to facilitate software transfer into the Windows environment.

About The Monitor Documentation

The MicroTech **Monitor** documentation consists of the MicroTech **Monitor** for Windows User's Manual and an on-line Help function that is part of the **Monitor** software application and is copied to your computer during the installation process.

Components

MicroTech Monitor for Windows User's Manual (this manual)

This manual is designed to help a user navigate through **Monitor**. It includes information on how to install the **Monitor** software application, information and instructions for basic use of **Monitor**, and as well as a guide to the advanced features for use by commissioning and service personnel.

Build

The Build program is used to reconfigure **Monitor**. Its use at this time is restricted to Daikin International's factory personnel.

On-Line Help

This manual has been transformed in its entirety into an on-line help utility. This help may be accessed at any time while in **Monitor**.

The Help file is also available without running **Monitor** through the Windows Program Manager. This allows the user to read from, search through, or print the document.

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Chapter 1 - Preparing Your Computer System

Setting Up Hardware

The Scope of this manual does not include the detailed procedures that may be required when performing the initial hardware setup and configuration. Refer to the documentation supplied by the computer manufacturer as part of the computer system.

Making Backup Copies

Due to the licensing agreement that is included with each **Monitor** software release, backup copies for the end customer should be limited to one. Backup copies should always be used when loading and unloading **Monitor**.

Set aside as many 3½" 1.44 MB Floppy diskettes that were included with the **Monitor** software release.

1. Insert the original release disk 1 into the 1.44 MB (3½") floppy disk drive. (Note, because hardware setup may vary, this drive may be designated as either drive A or Drive B. In this manual it will be assumed that the drive is designated drive A).

1. From Windows Explorer, select the A:\ drive. In the right column you should see a file. Click on the file and select Edit… Copy. Go to a new temporary directory. Select Edit… Paste. This will copy the file on the diskette to the temporary directory you chose.

1. Click on the file you just copied to the temporary directory and select Edit… Copy. Remove the original release diskette from drive A and insert a blank diskette into drive A:\. In Windows Explorer, select the A:\ drive again. Click on Edit… Paste. This will copy the file to the new diskette.

1. Remove the diskette from the A:\ drive. Create a label for the diskette using the information supplied on the label for the original diskette.

Place the original diskette in a safe place for storage. Repeat the backup steps for all original diskettes. Use the backup diskette as a working copy to load the **Monitor** files onto a hard disk.

Installing Software

Installing the **Monitor** software involves executing an install program. There are two methods of doing this: using the Run command from the **Start Menu** or running the program from **Windows Explorer**.

It is recommended that any third party software program managers be disabled. These include PC Tools and Norton Desktop. The creation of a program group using one of these packages has the possibility of leading to program errors.

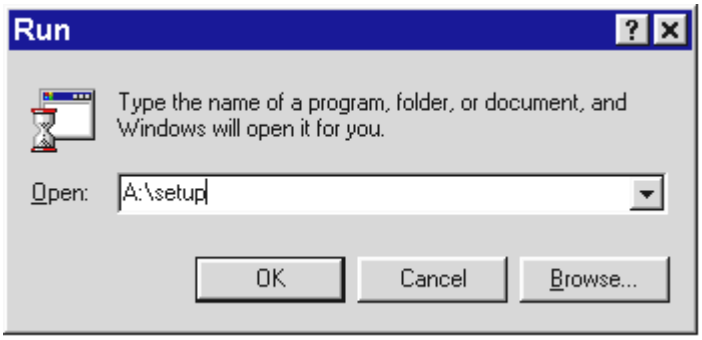
Use a back-up copy of the **Monitor** installation software. Place the diskette in the floppy drive (drive a: or b:). Then use one of the following methods.

Method 1

From the **Start Menu**, select **Run…** on the menu bar. A Dialog box will appear containing a command line for text entry.

Type:

a:\setup (or b:\setup if appropriate)



Click on the **OK** command button.

Or

After selecting **Run…** on the **Start Menu**, select the **Browse…** button. Select the letter than corresponds to your diskette drive and click on the setup.exe file. Click on **Open** and then click on **OK**.

Method 2

From **Windows Explorer**, click on the drive letter corresponding to your diskette drive.

Move the mouse pointer to the **Setup.exe** file and double click on it with the left mouse button.

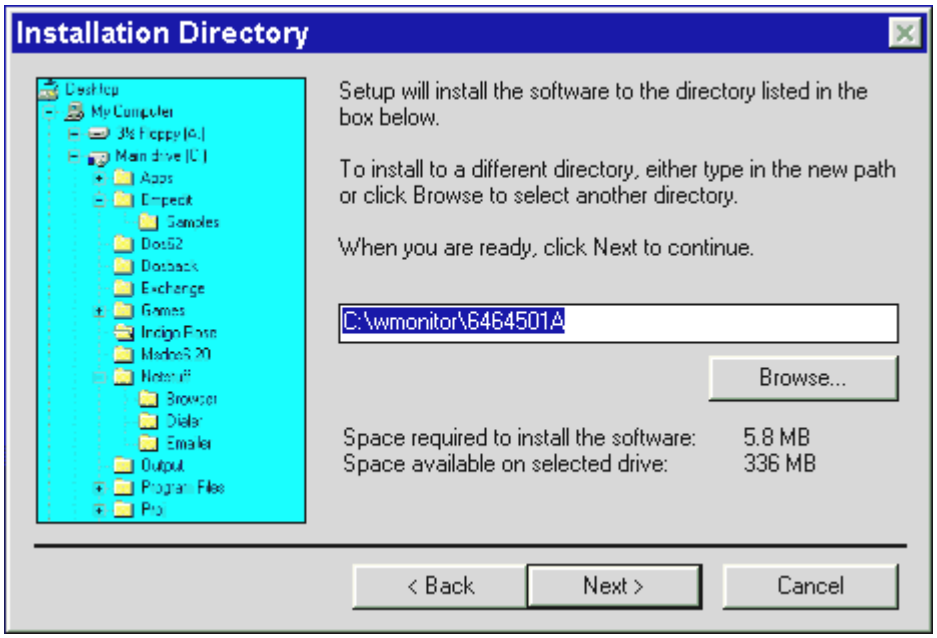
Monitor Installation

Regardless of which method was used, a **Welcome** screen will appear. Read the information and click **Next >**.

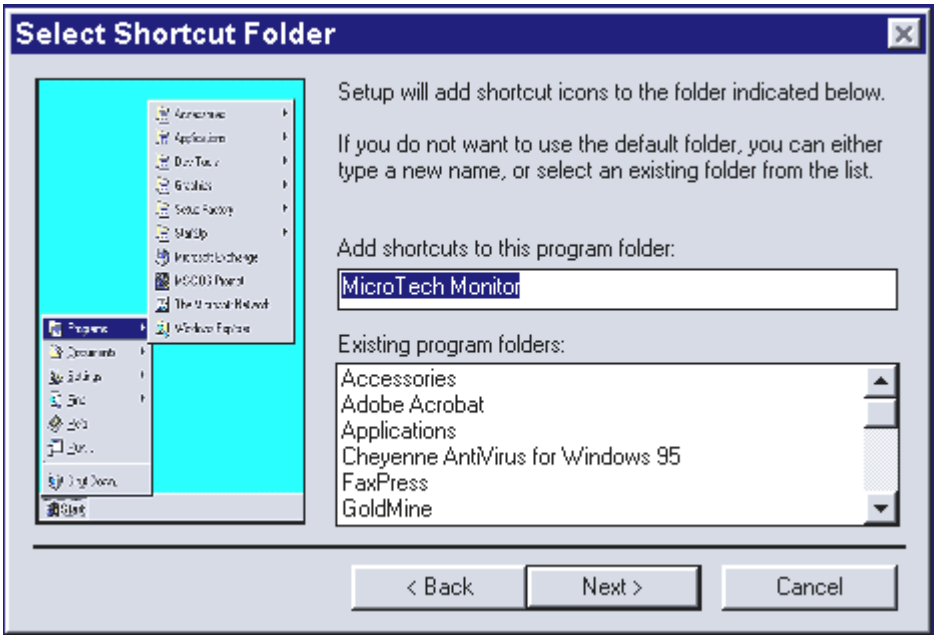
Welcome
Welcome to the MicroTech Monitor Setup program. Setup will install the software on your computer.
Setup can not update files that are in use. Therefore it is strongly recommended that you exit all Windows programs before running this Setup program. Click Cancel to quit Setup and then close any programs you have running.
WARNING: This program is protected by copyright law and international treaties. Unauthorized reproduction or distribution of this program may result in severe civil and criminal penalties, and will be prosecuted to the maximum extent possible under law.
Click Next to continue with the Setup.
< Back
Next >
Cancel

The next screen is the **Installation Directory** screen. A default directory that the **Monitor** files will be installed into is in the middle of the screen. For all Daikin software distributions, the installation directory will be C:\WMONITOR\6xxxxxxx, where 6xxxxxxx represents a unique part number that will be assigned for each release.

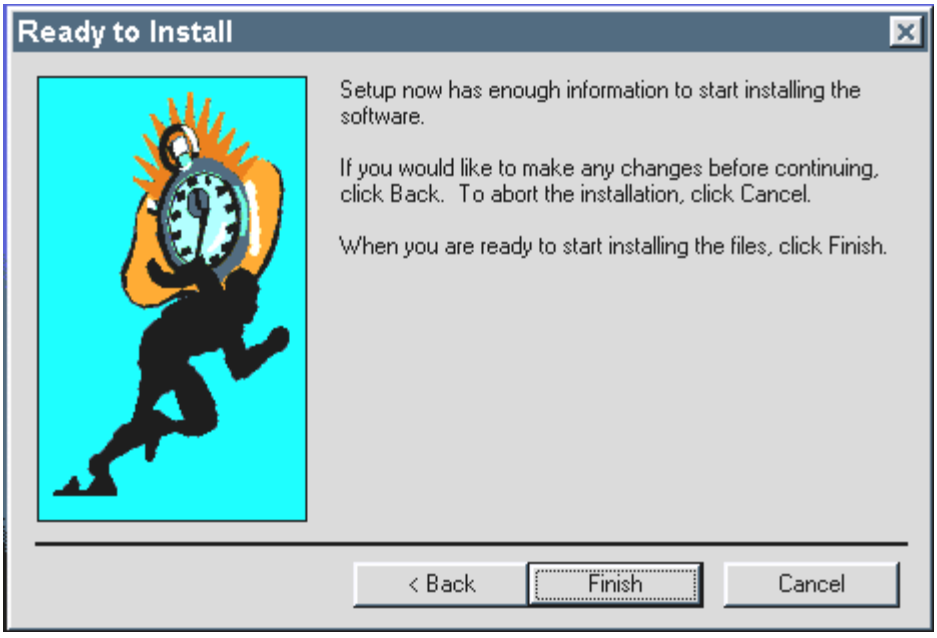
At this point you may type in your own directory path, select **Browse…** and select the install directory, or use the default directory. Click on the **Next >** button to continue or **< Back** to return to the **Welcome** screen.


Installation Directory
Setup will install the software to the directory listed in the box below.
To install to a different directory, either type in the new path or click Browse to select another directory.
When you are ready, click Next to continue.
C:\wmonitor\6464501A
Browse...
Space required to install the software: 5.8 MB
Space available on selected drive: 336 MB
< Back
Next >
Cancel

The following screen is the **Select Shortcut Folder** screen. The program folder is where the shortcut to start the **Monitor** will be stored. Either accept the default folder (MicroTech Monitor), select a folder from the existing program folder list or replace MicroTech Monitor with a new folder name. Select **Next** > to continue or **< Back** to return to the **Installation Directory** screen.


Select Shortcut Folder
Setup will add shortcut icons to the folder indicated below.
If you do not want to use the default folder, you can either type a new name, or select an existing folder from the list.
Add shortcuts to this program folder:
MicroTech Monitor
Existing program folders:
Accessories
Adobe Acrobat
Applications
Cheyenne AntiVirus for Windows 95
FaxPress
GoldMine
< Back
Next >
Cancel

The next screen is the **Ready to Install** screen. Read the information on this screen and either select **Finish** to begin installation or **< Back** to edit previous screens.


Ready to Install
Setup now has enough information to start installing the software.
If you would like to make any changes before continuing, click Back. To abort the installation, click Cancel.
When you are ready to start installing the files, click Finish.
< Back
Finish
Cancel

The install program will extract all of the **Monitor** files and load them into the chosen directory. When prompted, insert the appropriate diskette to complete installation. After installation is completed, a **Finished** screen will appear. Click on **Finish**.

Finished
Setup is complete and your software is now installed!
Congratulations on choosing MicroTech Monitor!
Click Finish to end the Setup.
< Back
Finish
Cancel

Chapter 2 - Learning the Basics

Starting Monitor

Only one **Monitor** application can run at any one time. **Monitor** can be started with three different methods.

Method 1

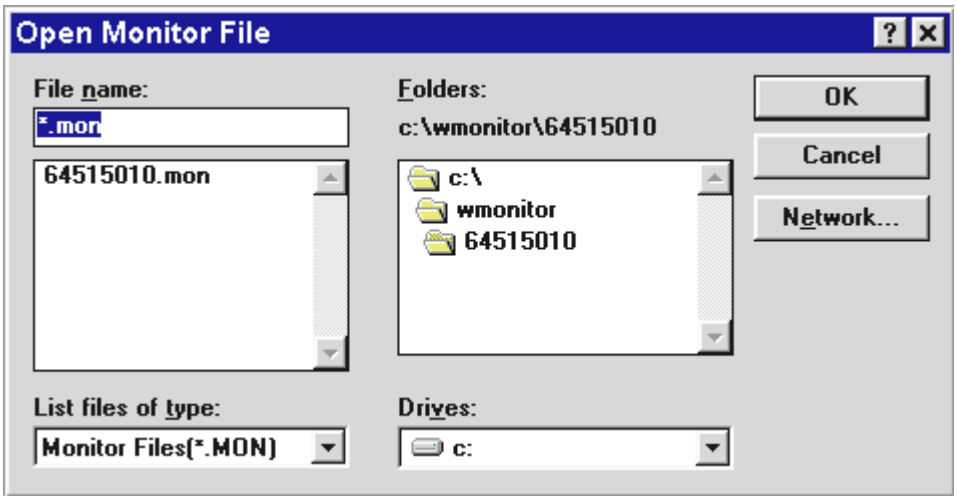
This method will use the shortcut to **Monitor** created by the installation. Click on the **Start** button. Select **Programs** and a new menu will appear to the right. Select the shortcut folder created in the installation phase (default is MicroTech Monitor). Lastly select the **Monitor** icon and the **Monitor** will start.

Method 2

This method will create a **Monitor** shortcut icon on your desktop. Once setup, this method will avoid going through the **Start Menu** as in Method 1. Right click on the **Setup** button. Select **Open** and double-click on the **Programs** folder. Double-click the shortcut folder created in the installation phase (default is MicroTech Monitor). Next, right click on the **Monitor** icon with your job name under it. Select **Copy**. Right-click on the desktop (not on an icon) and select paste. A **Monitor** shortcut icon should appear on your desktop. To start the **Monitor**, double-click on the **Monitor** icon.

Method 3

This method is useful to start the **Monitor** from Windows Explorer. Go to Windows Explorer and go to the directory the **Monitor** resides (default is C:\WMONITOR\6xxxxxx). Find the file WinMon in this directory and double-click it. A "generic" **Monitor** screen will appear. Select **File** and on the pull-down menu, select Open. A Dialog box will appear as shown below.



Select the file 6xxxxxxx.mon and click on **OK**. The **Monitor** will start.

Renaming the Monitor Icon

It may become necessary to change the description heading of the **Monitor** icon.

Chillers

Renaming the icon depends upon which above method is used to start the **Monitor**.

Method 1

Right click on the **Setup** button. Select **Open** and double-click on the **Programs** folder. Double-click the shortcut folder created in the installation phase (default is MicroTech Monitor). Next, right click on the **Monitor** icon with your job name under it. Select **Rename**. Type in the new name for the icon and hit the enter key when finished.

Method 2

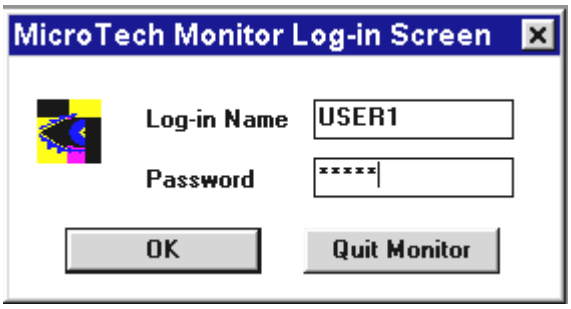
Right click on the **Monitor** icon with your job name under it. Select **Rename**. Type in the new name for the icon and hit the enter key when finished.

Method 3

This method does not use a shortcut icon and therefore has nothing to change.

Logging In

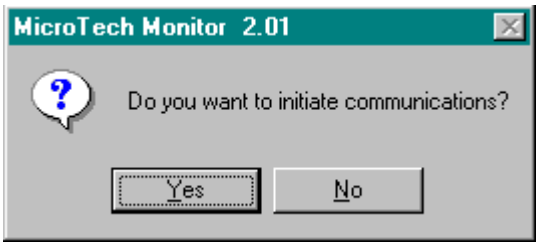
After launching **Monitor**, a Log-in screen will appear. To prevent unauthorized access you must enter a user name and password and then click on the **OK** command button. If you fail to enter the appropriate user name and password combination, you will be locked out of the application. You may also click on the **Quit Monitor** command button to end the application. The Log-in Name is: USER1 and the Password is: USER1.



A person with a high level user name and password will be allowed to add and alter additional users for **Monitor**. See the section on "How to Alter User Passwords" for additional information.

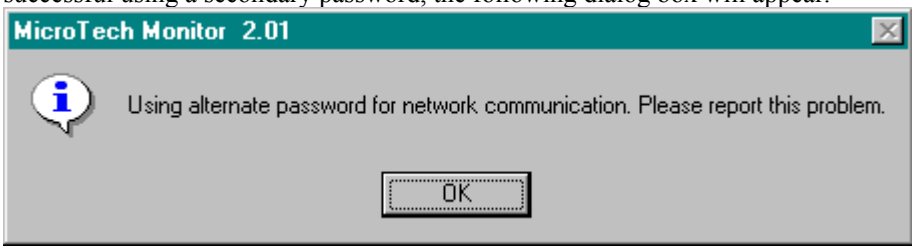
Communications

Assuming that you have logged-in successfully, you will be prompted to attempt a communications link. By clicking on the **YES** command button, you will initiate the **Monitor** program's attempt to communicate using the set-up parameters defined through the General Setup Parameters dialog box.



After choosing **YES**, communications initiation will commence.

Monitor will attempt a connection using its primary connect password. If attempts to communicate fail, it will use a pre-defined secondary password. If **Monitor** is successful using a secondary password, the following dialog box will appear.



Using a secondary password will disable some functions of **Monitor**. Contact your Daikin representative if this becomes a problem.

On-Line Help

The **Monitor** program offers an integrated HELP utility that will include the text of this user's manual, full text searches, and eventually OM support for associated HVAC units.

The HELP function is invoked by clicking on the Menu Bar item **Help**. A pull-down menu would appear with the options:

- **Help on MicroTech Monitor ...**
- **Help on YOURJOB ...**
- **Help on CUSTOM**
- **About MicroTech Monitor ...**

Selecting one of the options will give access to the associated help file (*.HLP) file for that topic. The Windows utility "Winhelp.EXE" will be used to open that file. Once the file is open it will either create a single dialog box displaying the selected information, create a dialog box for selecting information on a more specific topic or create a split window for navigating through a "table of contents" format of topics (on the right) while displaying the textual information on the chosen topic (on the left) simultaneously.

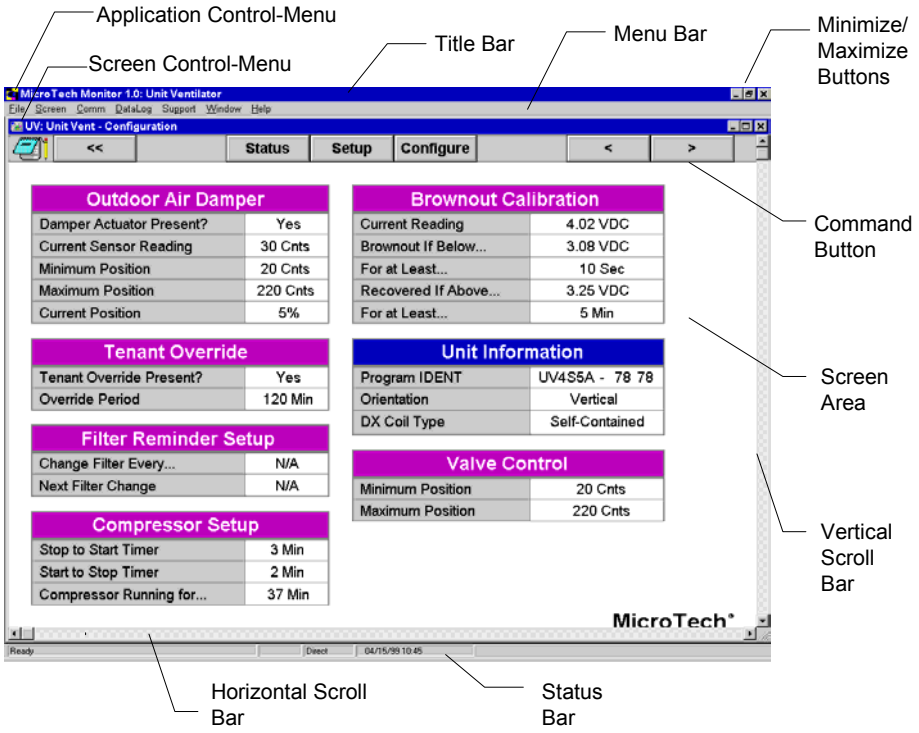
Chapter 3 - Monitor Overview

Monitor Application Window

As with any window contained within the **WINDOWS** environment the **Monitor** application window and screens contain all of the same common elements. Any window can exist in one of three forms:

Window form	Description
Maximized	In this form the window occupies the entire desktop area.
Sized	In this form the window occupies an area that is superimposed above the desktop. The dimensions of the window may be as big as the desktop or as small as allowed by the application you are working within. (**Monitor** allows a sized window to be as small as to only include the control-menu box, the minimize/maximize buttons, and a portion of the title bar). A sized window may also be moved (or dragged) within the desktop area.
Minimized	In this form the window is represented as a button at the bottom of the screen. The button can be clicked to return the Monitor its previously sized position (maximized or sized).

Let us examine a typical window so that all of the elements are clearly understood.



Control-Menu

The **Monitor** application control-menu is identified by the symbol and the screen control menu is identified by the symbol. Both are located in the upper left hand corner of the appropriate window.

The commands available within this menu are dependent on whether it is contained within a maximized, minimized, or sized window .

Command	Description	Window/Screen Form(s) or Dialog Box
Restore	Restores the window to its former size after you have enlarged it (by using the Maximize command) or reduced it (by using the Minimize command).	Max. and min. window/screen
Move	Use the keyboard to move the window to another position.	Min. and sized window/screen
Size	Use the keyboard to change the size of a window.	Sized window/screen
Minimize	Reduce the window to a button.	Max. and sized window/screen
Maximize	Enlarge the window to its maximum size.	Min. and sized window/screen
Close	Close the window. (From an application window, you can use this command to quit the application.)	Max., min., and sized window/screen
Next	Switch between open screen and last used screen.	Max., min., and sized screen window only

Title Bar

The title bar is the uppermost strip in any window. In **Monitor,** there is a title bar for the application window, screens, and dialog boxes. The following information is linked to the window type and can be displayed based upon user set-up:

Window Type	Linked Information
Application	Program Title and Network Title
User Screen	Controller Label, Controller Description, and Title for the Screen.
Dialog Box	Dialog Box Title

When a user screen is maximized, the information that would appear in its title bar will be combined into the title bar of the application window. Due to the limited line space in the title bar, some of the information that is linked to a window may be enabled or disabled for display. The detail for this setup can be found in Chapter ###.

Menu Bar

Menus are references to a set of commands contained within an application. They are all contained on the menu bar. This is the strip directly below the title bar. Clicking on a menu will open up a pull-down menu or selection list of application commands.

There are several menu command conventions used in Windows:

Menu Convention	Meaning
Dimmed command	You may not be able to use this command option due to authorization or to how it applies to the current window.
A following ellipsis (...)	A dialog box will appear when this command is chosen. The dialog box will contain additional options and choices needed to carry out the command.
A left side check mark (√)	The command is in effect. When the check mark is removed (by selecting the command), the command is no longer in effect.
A following keystroke combination	The key combination is a shortcut for this command. You can use this key combination from the active window to execute the command.
A following triangle (▶)	A cascading menu is available for this command. This will list additional commands or options.

Commands without any special designation will execute when they are chosen.

Minimize/Maximize Buttons

As stated previously a window can exist in one of three forms. The minimize, maximize, and size buttons allow changing the form of the application window and screens within **Monitor**.

For the application window, three buttons are displayed to the right of the title bar. If the application is in the maximized position: the left button is used to minimize the entire application, the middle button will put the application in a sized window, and the right button is used to exit the application. If the application is in the sized position: the left button is used to minimize the entire application, the middle button is used to maximize the application, and the right button is used to exit the application.

For a screen, three buttons are displayed depending on the form of the window. If a screen is maximized, the buttons will be displayed to the right of the menu bar. If the screen is sized or minimized, the buttons are displayed to the right of the title bar for that screen. If the screen is maximized: the left button is used to minimize the screen, the middle button is used to size the screen, and the right button is used to cancel the screen. If the application is in the sized position: the left button is used to minimize the screen, the middle button is used to maximize the screen, and the right button is used to cancel the screen. If the application is in the minimized position: the left button is used to size the screen, the middle button is used to maximize the application, and the right button is used to cancel the screen.

Screen Area

The area beneath the menu bar is the screen area. In addition to the user screen(s), it is where the information about a particular HVAC unit, piece of control equipment, or **Monitor** function will appear. The screen area is updated with new information on a continuous basis.

The screen area may fill-up more space than is available to view on the computer terminal. In this case, a scroll bar will be included to move from right to left (**horizontal scroll bar**) and/or from up to down (**vertical scroll bar**). Simply click on the arrows found at either end of the scroll bar for incremental movement of the image or click on a position directly on the scroll bar to move the image more quickly.

Command Buttons

Within a user screen or dialog box there are defined rectangular regions called command buttons. These buttons will contain either a < or a > symbol. By choosing a command button with the mouse, a pre-defined action is performed. The use of command buttons makes navigating through the user screens possible as there is no other way to open multiple windows for a particular HVAC unit or controls equipment.

Status Bar

The bottom strip on the window is called the status bar. It is broken into four information sections. The first section (furthest left) contains communication status information or a text description of a selected menu or menu item. Examples include: "Ready," "No response from unit 01.00," or "Choose a unit to monitor."

The second section will display a data logging message of "DLog" whenever **Monitor** is receiving and processing alarm, event, and trend-logging information. During this time, no other updates of information are received and commands generated by either the mouse or the keypad are temporarily ignored.

The third section displays the type of communication in use. It will either be Phone, Direct, or No Comm (if there is no communication).

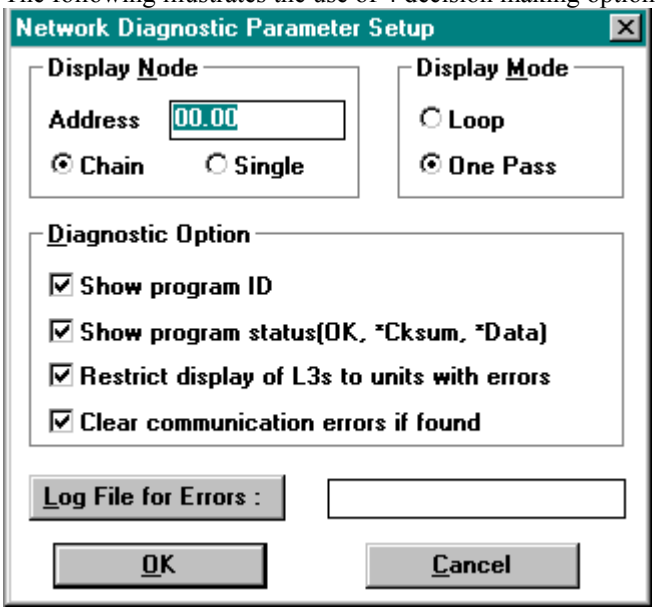
The fourth section displays the date and time as contained in the internal calendar and clock of the PC.

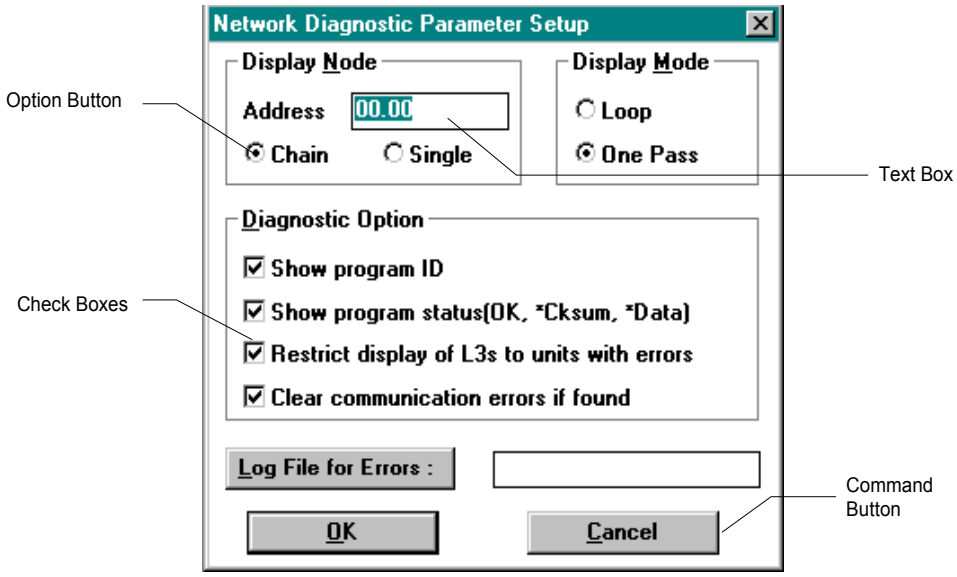
Monitor Dialog Boxes

Dialog boxes, as previously described, are small windows that appear on top of an application window. When they appear they are the active window. All mouse and/or keypad activity affect the information within the dialog box. Dialog boxes can contain one or more of the following fields or decision making options

Option	Description
Check Boxes	Allows selection of one or more items. Clicking on each option will result in an x appearing in the box. Clicking again will de-select the item.
Option Buttons	Used when only one option can be selected from a list of two or more.
Command Buttons	These appear as superimposed rectangles. When chosen they carry out an immediate action.
Edit Control	Allows you to type in information directly from the keyboard to create, add, or edit text.
Listbox	Allows you to select an item from a displayed list. Can include scroll bars. A listbox can also be hidden showing only a single line with a symbol to the right. Open the list by positioning the selection cursor on the symbol and clicking the left mouse button.
Static	A display of an icon, text label, or empty or filled rectangles.
Combobox	Combines a listbox with an edit control or a listbox with a static text. A hidden listbox may be contained in a combobox and will drop down only when an arrow icon is selected.

The following illustrates the use of 4 decision making options in a single dialog box.





Most dialog boxes have a title bar with the exception of a message box. Message boxes are a special type of dialog box that require no user input. Message boxes may appear while **Monitor** is performing a function as indication only. Once the function is completed the message box will close automatically. The following is an example.

Conventions

There are various conventions that are standard throughout **Monitor**. Understanding these more clearly makes it easy to use **Monitor**. These conventions include using a mouse and keypad, common dialog boxes and common commands.

Using the Mouse

As with most Windows applications, the **Monitor** program was designed for and works best with a mouse. Note that access to the **Monitor** screens is limited to using a mouse. This includes changing information and viewing additional screen for a particular unit except for the screen defined as the first screen during the unit list definition. As a result, this manual will be directed towards mouse driven command execution.
The mouse pointer on the screen is referred to as the selection cursor. By moving the selection cursor and pressing the right and left mouse buttons, you accomplish navigation through a Windows application. **Note: Monitor will only respond to action of the left mouse button.** When using a mouse the following terms are used:

Term	Description
Click	To quickly press and release the left mouse button
Double-Click	To click the left mouse button twice in rapid succession
Drag	To hold down the mouse button while you move the selection cursor
Point	To move the selection cursor until it rests on the item of choice.

For additional information on using a mouse run the Windows 95/98 tutorial. Consult your Windows 95/98 User's Manual.

Using the Keyboard

The keyboard can be used as an alternative method or in conjunction with the mouse. Most of what can be accomplished with the mouse may also be accomplished with keyboard strokes. **However, there are no provisions for using the keyboard to move the selection cursor. This prevents using the keyboard to access any information within the Monitor screens.** As a result, you cannot use the keyboard for changing information or viewing additional screens for a particular unit except for the screen defined as the first screen during the unit list definition.

Accelerator Keys

An accelerator keystroke performs a specific action without needing to move to a menu bar or menu. There are a limited number of accelerator keys defined for **Monitor**.

Key Stroke	Description
<Alt>	Move to Command Bar
<Alt>+<Esc>	Switch between running applications
<Alt>+<SB>	Open Control-menu for application window or dialog box
<Alt> +"-"	Open Control-menu for a user screen
<Alt>+F4	Close application (if called from a window) or close dialog box (if called from a dialog box)
<Ctrl>+F4	Close an active application window
<Ctrl>+Esc	Opens the Start Menu
F2	Open the unit controller list for editing and choosing
F3	Open the group monitoring selection dialog box
F5	Move to the previous unit controller. Open the main screen for that controller if it is not yet open
F6	Move to the next unit controller. Open the main screen for that unit controller if it is not yet open.
<Ctrl>+C	Initiate the copy screen command option

The <Alt> + the Underlined Character Method

All menu names, command option labels, and some command button labels and dialog box field labels have a single underline character (ULC). By simultaneously typing the <Alt> key and that character, **Monitor** responds accordingly.

Use with a Menu or Command Option

From an active **Monitor** desktop or application window typing the <Alt> and ULC keys simultaneously will open the appropriate menu. To execute a command option within that menu type, the ULC for the desired command option without the <Alt> key.

Use With a Dialog Box

Within a dialog box there may be command button labels and/or field labels that contain ULC's. Typing the <**Alt**> key and the ULC key associated with a command button label simultaneously will function as if the command button was chosen using the mouse. Typing the <**Alt**> key and the ULC key associated with a field label will move the selection cursor to that field.

Selected Keystrokes

There are some selected keys that allow navigating through some parts of **Monitor** using the keyboard. These are the <**Esc**>, <**Tab**>, <**Enter**>, and the <**Space Bar**> keys.

The **<Esc>** key is used to cancel an operation. This includes the opening of a menu and canceling (closing without action) a dialog box.

The **<Tab>** key is used to select a field within a dialog box including check boxes, list boxes, option buttons, and command buttons.

The **<Enter>** key is used to execute a command in a dialog box. It is the same as selecting the OK command button.

The **<Space Bar>** is used to choose a command button that has been selected either by the mouse or by use of the **Tab** key as described above.

Using the OK and Cancel Command Buttons

Every effort has been made to use the Windows convention of providing command buttons labeled **OK** and **Cancel** on every dialog box where applicable. Exceptions include:

- Message boxes
- Dialog box containing a question where answering either **Yes** or **No** would be more appropriate.
- Dialog boxes containing a warning or status message where only an **OK** command button will be displayed.

OK should be chosen to indicate that all data has been entered into the dialog box and that **Monitor** should perform the command that first opened the dialog box. **Cancel** should be chosen to close the current dialog box without changes being performed. An alternative to choosing **Cancel** is to typing the **<Esc>** key from the keyboard.

Common Dialog Boxes

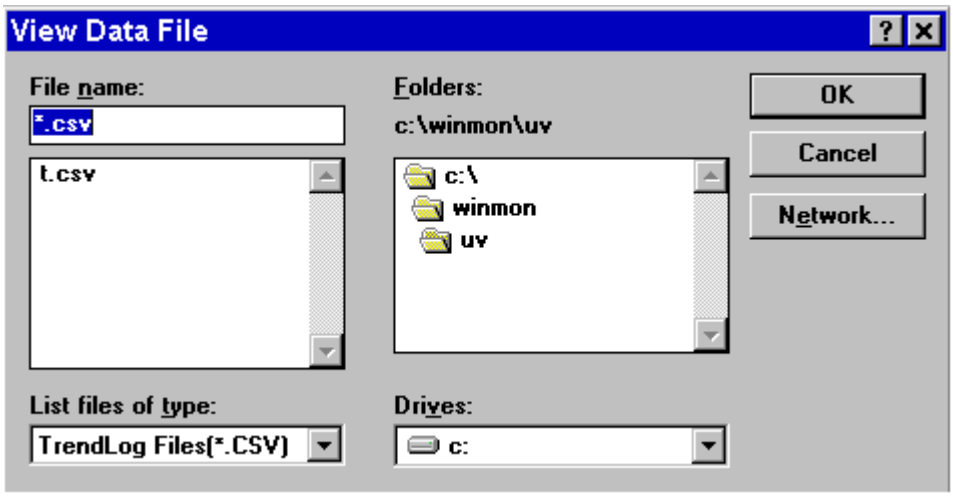
Windows provides two common dialog boxes that are used within **Monitor**. These may be titled differently when used within **Monitor,**. but they serve either to open or to save a specified file.

Using the Save-as Dialog Box

Windows provides a pre-defined dialog box for saving a file. **Monitor** uses this dialog box in multiple locations within the application. The Save-as dialog box contains four fields, File Name, List Files of Type, Directories, and Drives. Within these fields the user can select the disk drive, directory, file type (*.extension), and the name for the file that they wish to save. Once the desired file is selected, it can be saved by choosing **OK** or the dialog box may be closed with no action by choosing **Cancel**. Clicking on **Network…** will save the file to a network drive by mapping the drive locally.

Using the Open File Dialog Box

Windows provides a pre-defined dialog box for opening a file. **Monitor** uses this dialog box in multiple locations within the application. The Open File dialog box contains four fields, File Name, List Files of Type, Directories, and Drives. Within these fields the user can select the disk drive, directory, file type (*.extension), and the file name. Once the desired file is selected, it can be opened by choosing **OK** or the dialog box may be closed with no action by choosing **Cancel**. Clicking on **Network…** will save the file to a network drive by mapping the drive locally.



Navigation through Monitor

Navigating through the application consists of working with the options and commands found in the menus, and using the HVAC application screens to monitor and control your equipment. Within **Monitor** navigation is accomplished by selecting and choosing.

How to Select and Choose

Within **Monitor**, action is accomplished by selecting and choosing. Understanding the distinction between these two terms will aid you in understanding the actions performed under a Windows environment.

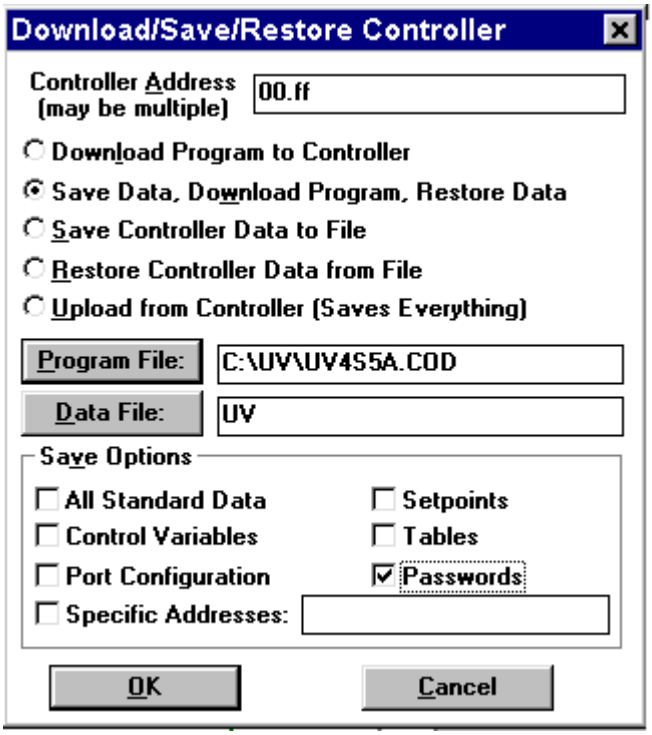
When you select something, you highlight it. You may select several items before an action is performed. When you choose something, the result is an immediate action.

Selecting an item with a mouse usually is done by positioning the selection cursor and clicking with the left mouse button. When something is selected it may appear highlighted or as a dot inside a circle (option button) or an x inside a square (check box).

There are two ways to select multiple items. To select several items from a list, hold down the **<Ctrl>** key as you click on your selection(s). Each item will stay highlighted as you click on the next item. To gather items that are grouped together, click on the first one. Hold down the <**Shift**> key as you click on the last item of the group. All of the items in the range between the first and the last will be highlighted.

Choosing an item is similar to selecting it; however, the result is an immediate action.

In the following example, you **select** the controller address, the type of download, the program file to download, and the items to be saved. You **choose** the **OK** command button to begin downloading.



Selecting an Active Window or Dialog Box

When multiple windows (user screens and/or dialog boxes) are open, changes will only be allowed in a single window at any one time. This is the active window. Some dialog boxes are restricted to always be active when opened and not allow other **Monitor** functions to operate until they are closed. Others allow for manually selecting the active window.

To select a window to be active position, the selection cursor over a portion of that window and click the left hand mouse button. There is a manual keystroke alternative that applies to user screens only. Type **Ctrl+F6** to switch between open user screens.

Part 2 Working with Monitor

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Menu Structure

Monitor is run by using the command options found in the pull-down menus or by using the command buttons programmed into the viewing screens. The command options are accessed by clicking on one of the menu names from the menu bar. The following menus are available:

File

Screen

Comm

DataLog

Support

Window

Help

Once a menu has been opened, a list of command options are displayed. By moving the selection cursor to the option of your choice and clicking with the left mouse button the option is selected.

Options with the "..." (ellipsis) extension will open up a dialog box.

Options with the " ▶ " extension will open up an additional choice of options.

Options without an extension will execute the selected command.

Chapter 4 - File and Screen Menus

Within the File menu is the following command option.

Exit

Within the Screen menu are the following command options.

Monitor Unit ... F2

Monitor Group ... F3

Previous Unit F5

Next Unit F6

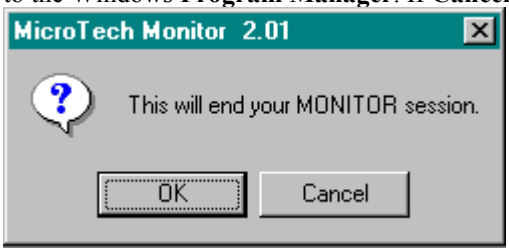
Copy Ctrl+C

Print...

Show Main Screen

Exit

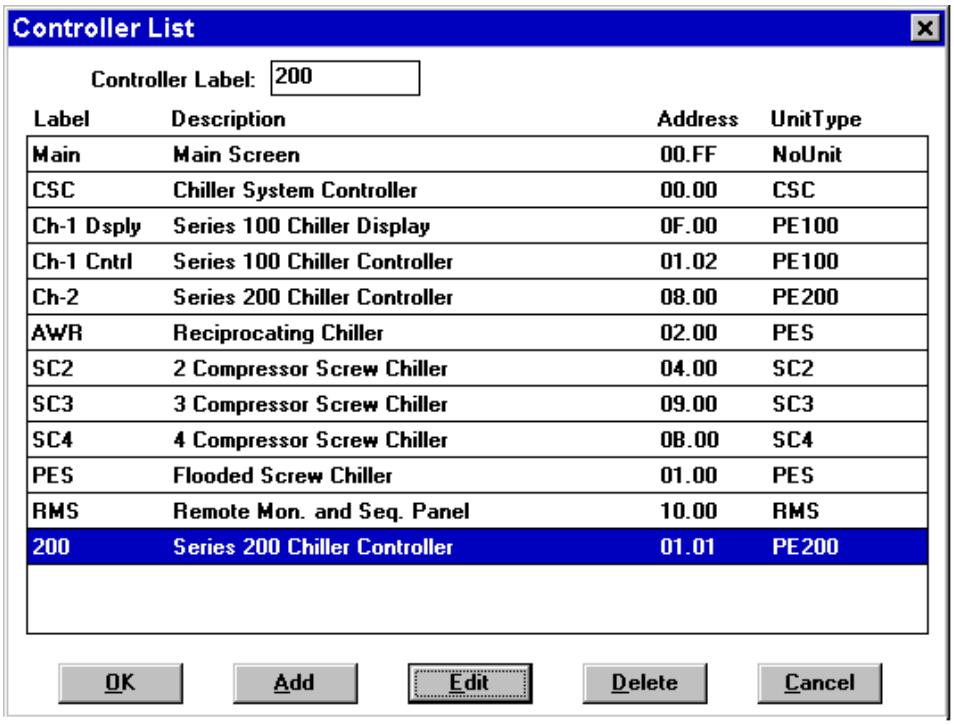
Exit will initiate exiting from **Monitor**. The following dialog box will appear confirming your intentions. If **OK** is chosen, **Monitor** will end and you will be returned to the Windows **Program Manager**. If **Cancel** is chosen, **Monitor** will resume.



Monitor Unit

Monitor Unit allows the user to choose a unit they wish to view. By selecting this option, the user is given a dialog box titled "Controller List". The "Controller List" provides information that is common to every unit. To Select a unit to monitor either type in the Controller Label or highlight your choice by pointing to it with the mouse and clicking. Then either click on **Choose** or press the **<ENTER>** key.

.


Controller List
Controller Label: 200
Label Description Address UnitType
Main Main Screen 00.FF NoUnit
CSC Chiller System Controller 00.00 CSC
Ch-1 Dsply Series 100 Chiller Display 0F.00 PE100
Ch-1 Cntrl Series 100 Chiller Controller 01.02 PE100
Ch-2 Series 200 Chiller Controller 08.00 PE200
AWR Reciprocating Chiller 02.00 PES
SC2 2 Compressor Screw Chiller 04.00 SC2
SC3 3 Compressor Screw Chiller 09.00 SC3
SC4 4 Compressor Screw Chiller 0B.00 SC4
PES Flooded Screw Chiller 01.00 PES
RMS Remote Mon. and Seq. Panel 10.00 RMS
200 Series 200 Chiller Controller 01.01 PE200
OK
Add
Edit
Delete
Cancel

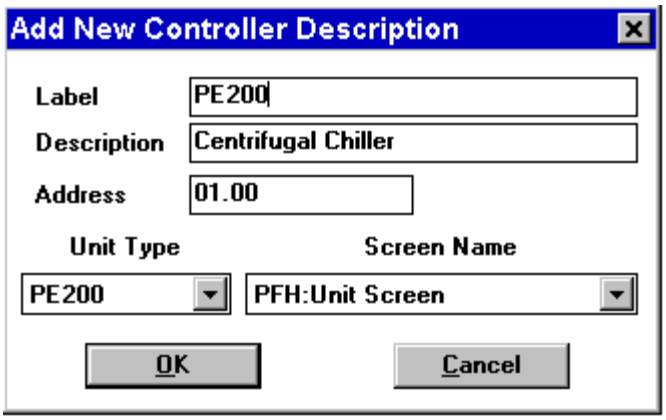
For each controller the following data is displayed.

Controller Information	Description
Label	A Label is a name given to each unit for selecting and identifying it as part of a network. It must be unique for each unit in order to differentiate between all others. A Label is restricted to an 8 character length.
Description	A Description is used to describe the controller in more detail than the label. It does not have to be unique. It is limited to a 30 character length.
Address	Each MicroTech controller has an assigned address when it is part of a network or operating in a stand alone environment. This address differentiates it from other controllers and is used by **Monitor** as a unique locator for communications purposes. Refer to Appendix D, Network Architecture and Addressing.
Unit Type	The Unit Type is a designator for **Monitor**. It is used to identify common characteristics between controllers in order to assign the correct application screens and to determine the appropriate alarm label when using the Alarm Logging feature.

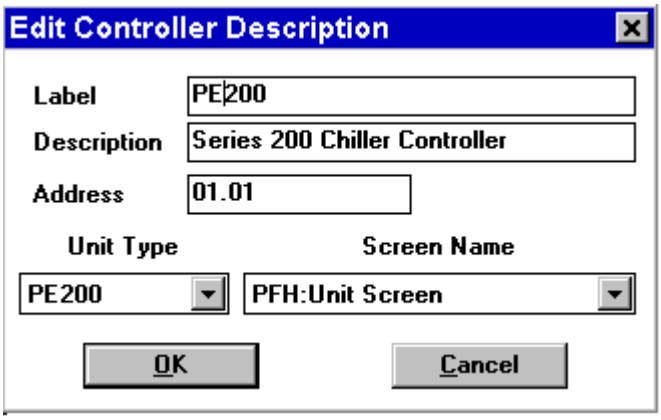
The following command buttons are associated with the "Controller List" dialog box.

Command Button	Description
OK	Use this button to open the windows associated with the chosen controller.
Add	Use this button to open a dialog box used to add an additional controller.
Edit	Use this button to change information about any listed controller.
Delete	Use this button to delete selected controllers from the Controller List.
Close	Use this button to close the Controller List dialog box.

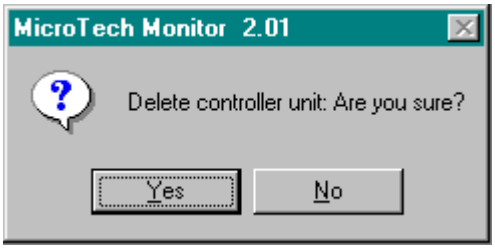
When **Add** is chosen, the following dialog box appears. Type in the appropriate information for Address, Label, and Description and select the Unit Type and Screen Name from the drop-down lists, then choose **OK**. To cancel the add process at any point, choose **Cancel**.



When **Edit** is chosen, the following dialog box will open. Make any changes by typing in the information for Address, Label, and Description and change the Unit Type or Screen Name from the drop-down lists, then choose **OK**. To cancel the add process at any point, choose **Cancel**.



Select any unit in the Controller List. When **Delete** is chosen a verification dialog box will open.



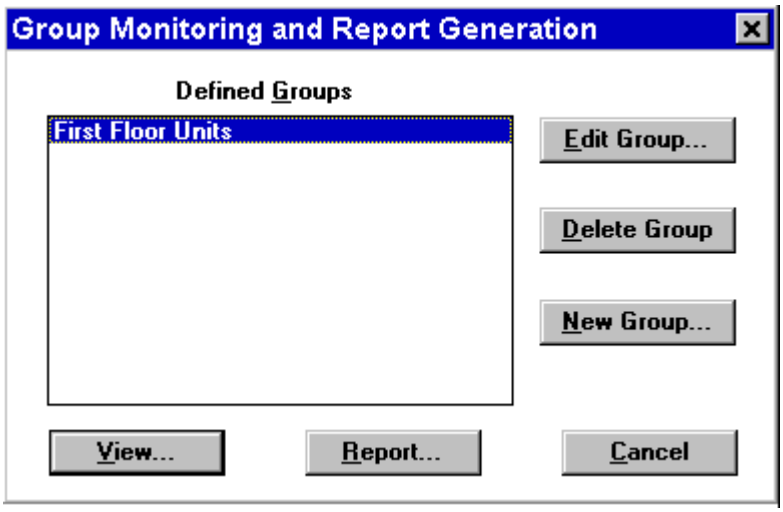
Choose **OK** to proceed with deleting the unit. To cancel the deletion choose **Cancel**.

Monitor Group

Monitor Group allows the user to set up, save, and retrieve information from selected groups of controllers and user selected parameters within controller types. From the group monitoring screen, you are allowed to change the values of setpoints in single and multiple controllers of the same type. You can also choose single units for immediate viewing.

By selecting this option the "Group **Monitor**ing and Report Generation" dialog box is displayed.

Group Monitoring and Report Generation.

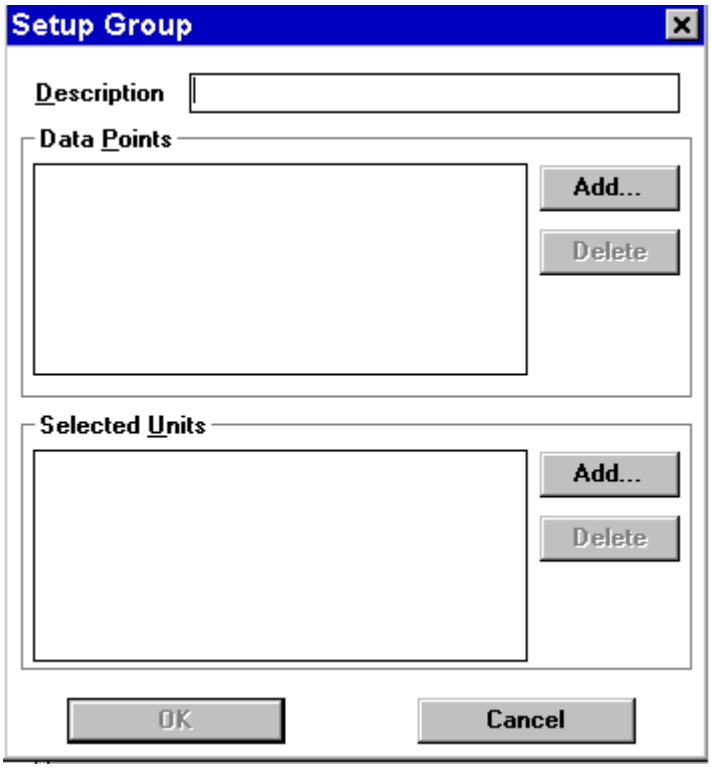


The following can be performed from the "Group **Monitor**ing and Report Generation" dialog box.

Dialog Box Field	Description
Defined Groups	Select any group displayed by positioning the selection cursor and clicking with the left mouse button.
Edit Group	Allows the editing of the information of a previously defined group that has been selected.. Opens up the Setup Group dialog box
Delete Group	Deletes any selected group.
New Group	Allows creating a new group. Opens up the Setup Group dialog box.
View...	Opens up a Group **Monitor**ing window displaying information about the selected group.
Report...	Opens up a "Select File" dialog box to select a file used store a snapshot of the selected group's current data information. A new file may be typed in with a CSV extension or an existing file may be selected and overwritten. Choose **OK** from the "Select File" dialog box to copy current data information into the file. A dialog box showing the report generation status appears for an instant of time.
Cancel	Closes the dialog box.

New Group and Edit Group

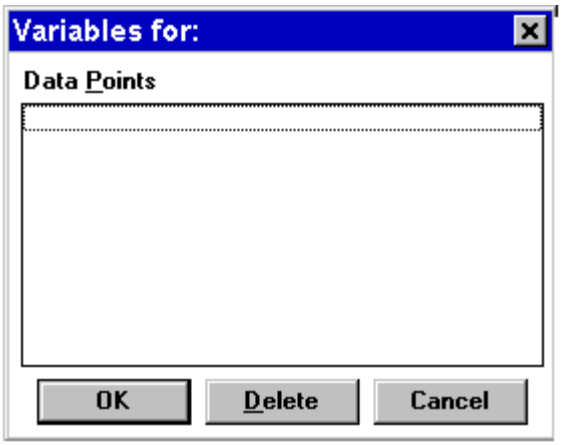
New Group and ***Edit Group*** functions are similar. The function allows the user to name the group, select variables to include into the group, and select from a list of available controllers. Choosing either will open up the "Setup Group" dialog box.



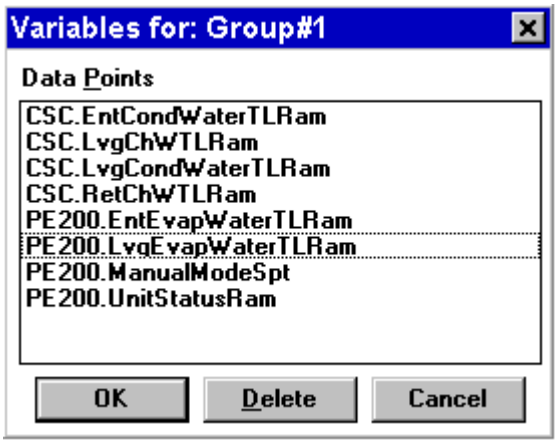
These options allow the setup for group monitoring.

Dialog Box Field	Description
Description	Type in a unique name used to describe the group.
Data Points	Choose **Add** to create or modify a list of data point variables for monitoring . Choose **Delete** to erase all selected data points.
Selected Units	Choose **Add** to add to or subtract from the list of monitored units. Choose **Delete** to erase units from the list of monitored units.
OK	Accepts all current changes to the group information and closes the dialog box.
Cancel	Ignores all current changes to the group information and close the dialog box.

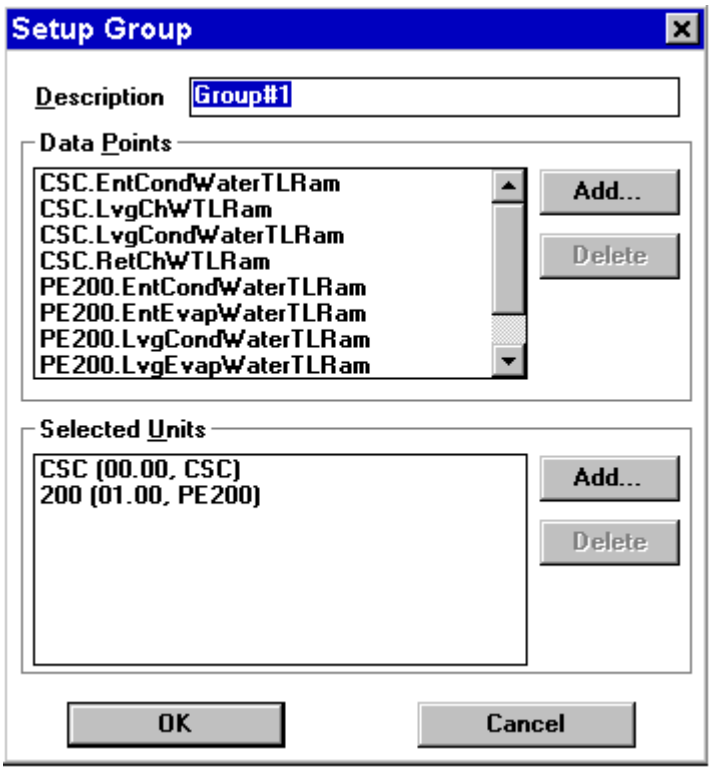
Choosing **Add** in the Data Points field will open up the "Variables for:" dialog box.



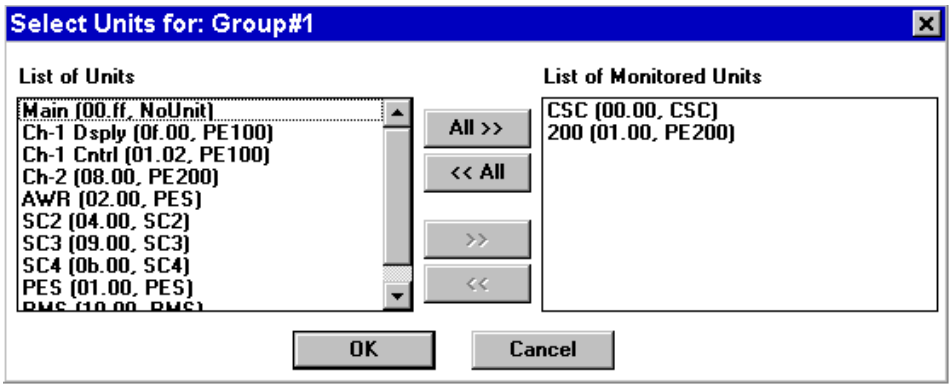
Open one or more of the user screens for an individual unit and position the selection cursor over the data point that you desire adding to the list. The selection cursor should change from the normal to the symbol. Click on the left mouse button to select the data point. Each selected data point will be added to the list of variables. There is no limit to the number of data points that may be selected.



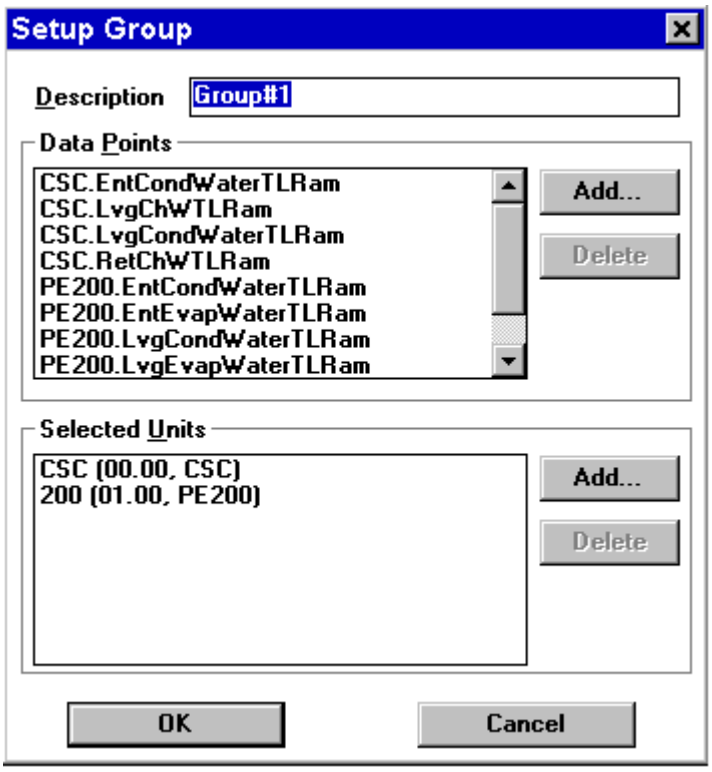
Choose **OK** to accept the list and return to the "Setup Group" dialog box, select any variable(s) from the list and choose **Delete** to erase them , or choose **Cancel** to erase all newly added variables and return to the "Setup Group" dialog box.



When returning to the "Setup Group" dialog box, the units whose screens were accessed when selecting data points are displayed in the Selected Units field. Choosing **Add** in the Data Points field will open up the "Select Units for:" dialog box.



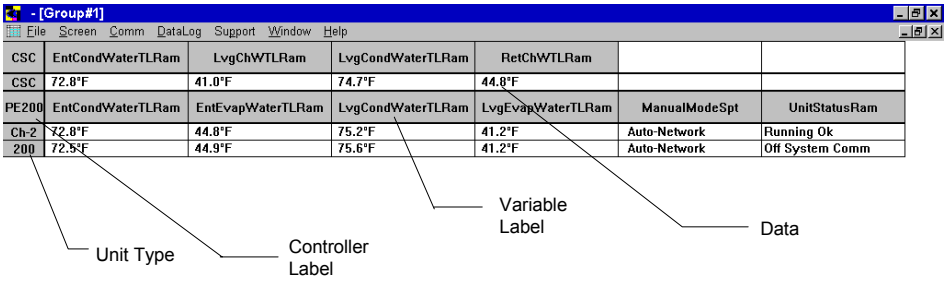
Select additional units that you want to monitor from the List of Units field and transfer them to the List of monitored Units field or visa versa. You may also select to transfer all units into either list. Choose **OK** to accept all changes and return to the "Setup Group" dialog box. Choose **Cancel** to erase all changes and return to the "Setup Group" dialog box.



Choose **OK** or **Cancel** as described above to return to the "Group **Monitor**ing and Report Generation" dialog box..

Viewing a Selected Group

Select a group and choose **View**. A group screen will be created to display all of the selected information for the selected units. Note that only selected units that have corresponding selected data points will be displayed.


- [Group#1]
File Screen Comm DataLog Support Window Help
CSC EntCondWaterTLRam LvgChWTLRam LvgCondWaterTLRam RetChWTLRam
CSC 72.8°F 41.0°F 74.7°F 44.8°F
PE200 EntCondWaterTLRam EntEvapWaterTLRam LvgCondWaterTLRam LvgEvapWaterTLRam ManualModeSpt UnitStatusRam
Ch-2 72.8°F 44.8°F 75.2°F 41.2°F Auto-Network Running Ok
200 72.5°F 44.9°F 75.6°F 41.2°F Auto-Network Off System Comm
Unit Type
Controller Label
Variable Label
Data

Additional control features are available.

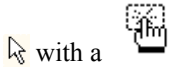
View Screen Feature	Description
Unit Type	Identifies name for a group of common units.
Controller Label	Position the selection cursor over the controller label. Double-click with the left mouse button to open the user screens associated with the selected controller.
Variable Label	The original label for a data point can be difficult to interpret. Changing the label will make it easily understandable by the user. (Example; the original label "RmTRam" can be replaced with "Room Temperature"). Position the selection cursor over the variable label. Double click with the left mouse button to open the "Question" dialog box to change the variable label from its original form.
Data	Position the selection cursor over the data point. If the variable is changeable the selection cursor should change from the normal "" to the "" symbol. Click on the left mouse button to open the "Change Value" dialog box.

Previous Unit F5 / Next Unit F6

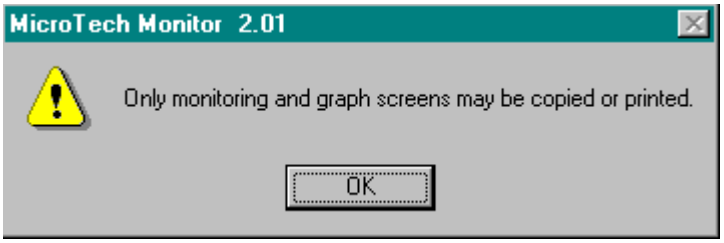
Previous Unit and ***Next Unit*** allow navigation through the controller list in either the forward or reversed direction. The intent of this command option is to provide the shortcut keystrokes of the **F5** and **F6** function keys in place of a mouse driven point and choose operation. The function will wrap around to the first or last unit depending upon the direction of the scrolling. Only the opening screen for the unit will be displayed. Viewing additional screens is limited to a mouse driven operation.

Copy Ctrl +C

Copy allows you to copy a full screen or displayed window of a monitoring image or data log graph to the clipboard so that it can be used by another windows' application. If an application screen is sized, only the visible portion of the active window will be copied. Maximize the window if you desire the full image to be copied.

Clicking on this option will result in the replacement of the normal  with a symbol as the selection cursor.

The selection cursor should be moved to any portion of the screen area that is to be copied. Then click the left mouse button to send the image to the clipboard. If the selection cursor is positioned inside a dialog box or within a bar the following message will be displayed and no image will be copied.

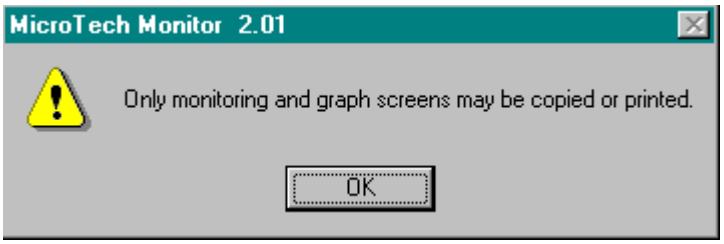


Print

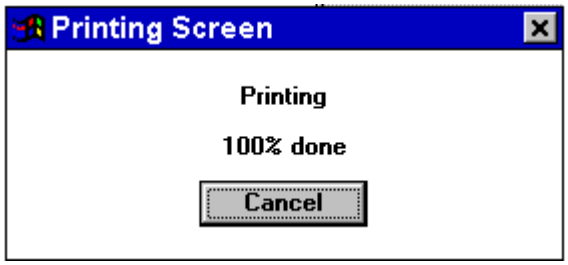
Print will print a selected screen to a connected printer. All values within the displayed portion of an active window will be printed including title, command, and status bars. If the selected application screen is sized, only the portion of the window that is visibly displayed will be printed. Maximize the window in order to print the entire image.

Clicking on this option will result in the replacement of the normal with a symbol as the selection cursor.

The selection cursor should be moved to any portion of a displayed window that is to be printed. Then click the left mouse button to send the image to the printer. If the selection cursor is positioned inside a dialog box or within a bar, the following message will be displayed and no image will be printed.



If the selection is valid, a small window will appear to inform you of the printing progress. When the printing is completed the window will vanish.



If you choose **Cancel** within the printing progress dialog box, an "Error" message window might appear indicating a failure to complete the printing process. Choose **OK** to close this window and continue.

Show Main Screen

Show Main Screen chooses and opens the "main screen" window. The main screen is the first screen a user will see when they enter **Monitor**. It has no command buttons and will display minimal job information.

The main screen graphic is contained in a Windows Metafile Formatted (*.WMF) file that is named MAINSCRN.WMF. This file may be replaced with any *.WMF file that is renamed MAINSCRN.WMF and placed in the subdirectory operating the job configuration for **Monitor**. This allows the user to insert a customized graphic into their **Monitor** application.

Chapter 5 - Comm Menu

Within the Comm menu are the following command options.

Connect...

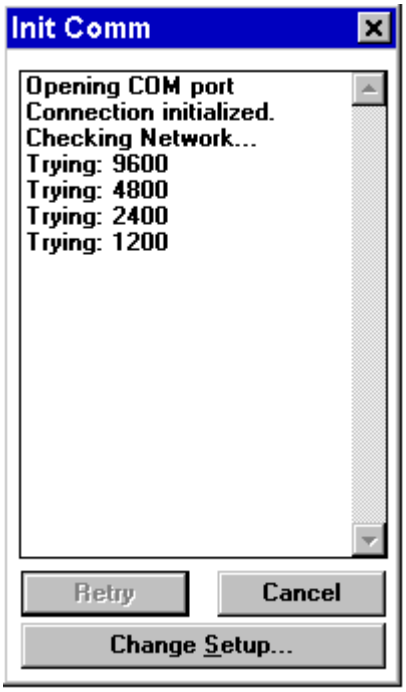
Disconnect...

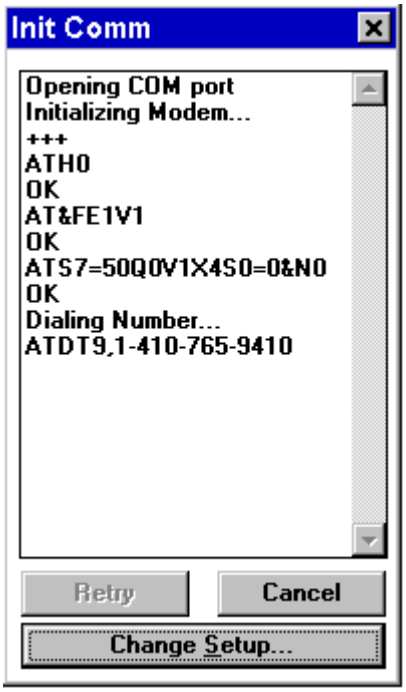
Network Diagnostics...

Connect

Connect will initiate a communication attempt using the setup parameters defined through the "General Setup Parameters" dialog box of the ***General Setup*** command option of the Support Menu.

Depending on whether the communications is setup for DIRECT or PHONE, the "Init Comm" dialog box will open and a communications attempt will commence.



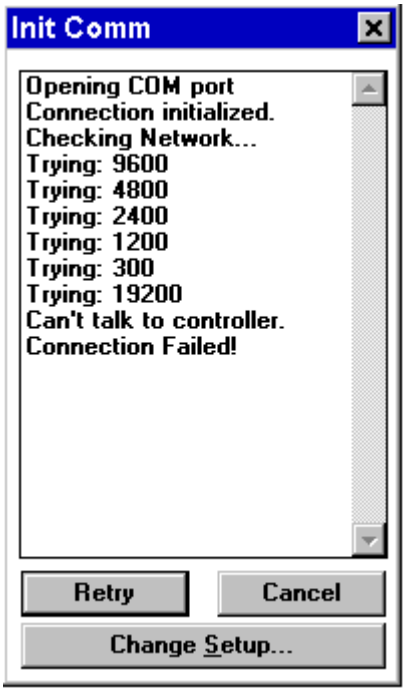


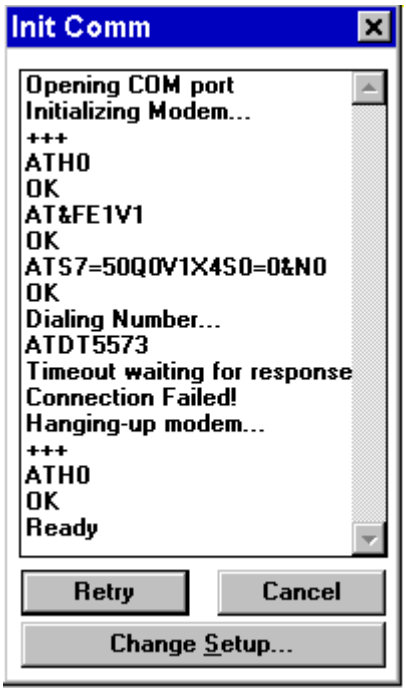
Connection to a controller either by phone modem or direct linkage requires a positive response from the controller to the request made by **Monitor**. The request from **Monitor** includes an 8 character hexadecimal password that is used to prevent unauthorized communication. The password used in the connection attempt must be accepted by the controller. **Monitor** will use the Comm Password and/or some alternate pre-defined passwords. The Comm Password is selected in the "General Setup Parameters" dialog box of the ***General Setup*** command option of the Support Menu and is displayed and available for change to *Daikin factory trained users* only.

For DIRECT connection attempts, the requests from **Monitor** are made at different transmission speeds (baud rates). For PHONE modem connection attempts, the baud rate is determined by that between the sending and receiving modems. In either case the baud rate of the request must match the baud rate assigned to the linked controller's communications port.

Failure to Connect

If either the password or the baud rate are not accepted by the linked controller a connection is not established.

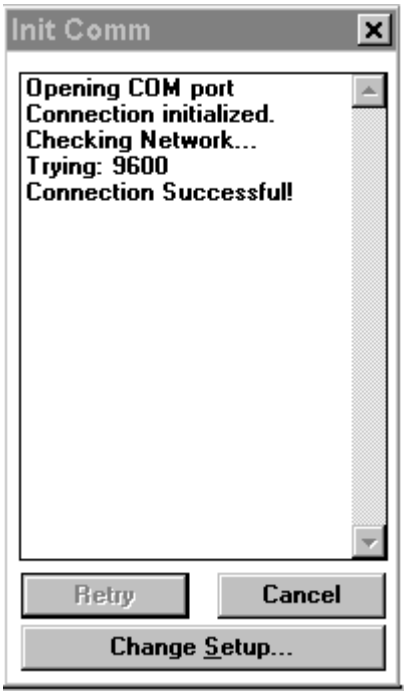




Choose **Retry** to attempt to connect again using the same setup parameters. Choose **Cancel** to close the dialog box without connecting. Choose **Change Setup** to open the "General Setup Parameters" dialog box to change any of the setup information (see ***General Setup***).

Successful Connection

If the password and the baud rate are accepted by the linked controller, a positive acknowledgment is received, a connection is established and the "Init Comm" dialog box closes.

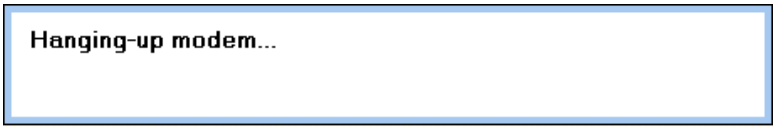


If an alternate password is used for connection a warning message dialog box is displayed.

If **Monitor** is being linked to the level 1 controller for a network or a single unit controller in a stand-alone application, this can indicate an improper setup of the **Monitor** application. This may require a change to **Monitor** by a *Daikin authorized user*. If **Monitor** is linked to a slave unit controller in a network for a temporary connection, this can be a normal condition.

Disconnect

Disconnect will break the **Monitor** to controller communications connection. It will not exit **Monitor**. If your type of connection was DIRECT, the status bar will display the message "Port is not open". If the connection type is PHONE, the following message box appears.

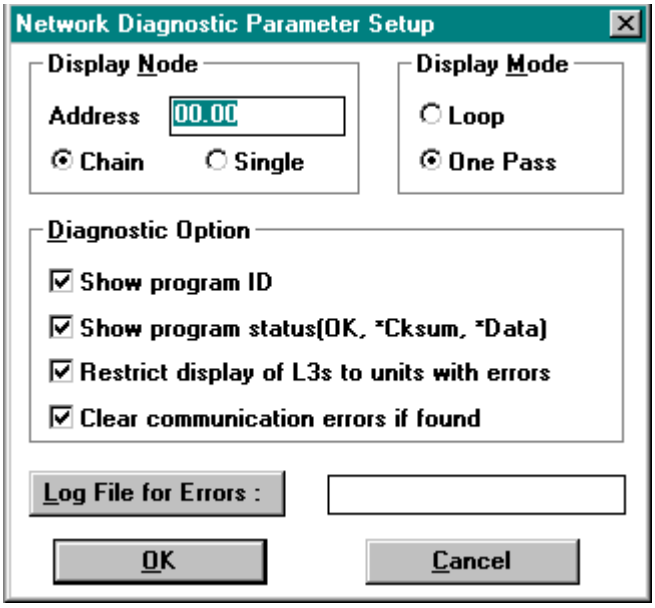


Network Diagnostics

Network Diagnostics opens up the "Network Diagnostic Parameter Setup". The network diagnostic function is a tool for troubleshooting network communications problems. Its basic use is to test each controller for communication to the front end computer. It can be used in a more advanced interpretation to isolate communication problems between two individual controllers.

The "Network Diagnostic Parameter Setup" dialog box is displayed when ***Network Diagnostics*** is chosen. After completing the setup choose **OK** to initiate.

Performing the Setup

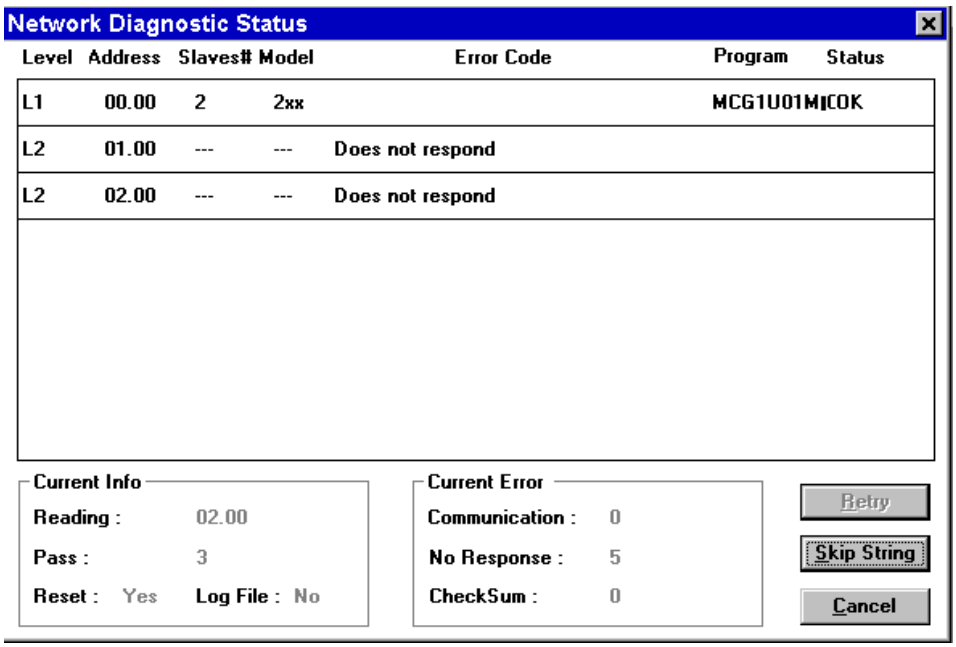


The "Network Diagnostic Parameter Setup" dialog box contains the following.

Dialog Box Field	Description
Display Node	Enter the address to identify the start of a chain or to identify a single controller. Select one of the following: • **Chain** - selects a chain of controllers. **Monitor** will scan the controller whose address has been entered and its slaves and the slaves of its slaves (within network architecture limitations). • **Single** - selects only a single controller. **Monitor** will only scan the controller whose address has been entered.
Display Mode	• **Loop** - select to continually loop through the chain of controllers or single controller. • **One Pass** - select to perform a single pass through the chain of controllers or single controller.
Diagnostic Option	• **Show program ID** - select to display the an identification string for the application program that is loaded into the controller (6 characters for a model 1xx and 8 characters for a model 2xx controller). • **Show program status (OK, *Cksum, *Data)** - select to display information about the operation of the application program. A *Cksum will indicate a corrupted program in both a model 1xx and 2xx controller. A *Data will indicate a memory allocation error preventing the execution of a program in a model 2xx controller. An OK indicates no problem with the application program. • **Restrict display of L3s to units with errors** - select to reserve screen space for controllers that require attention. • **Clear communication errors if found** - select to clear the communication error memory buffer in each controller while it is scanned. Further scans of the controller will only display current communication errors if present.
Log Files for Errors	Select an existing file or type in a new file name to log communication errors into for future analysis.
OK	Opens the "Network Diagnostics Status" dialog box and runs network diagnostics.
Cancel	Closes the "Network Diagnostic Parameter Setup" dialog box without saving changes.

Running the Network Diagnostics

The "Network Diagnostics Status" dialog box is displayed after choosing **OK** from the "Network Diagnostic Parameter Setup" dialog box.



The following are in the "Network Diagnostic Status" dialog box..

Dialog Box Field	Description
Display Area (not labeled)	Provides a single line of data for each scanned controller. For a more detailed description refer to Appendix C, "Communications Responses".
Current Info	Provides information relating to the current scan. In a Loop selection the number of pass will increase each time the entire network is scanned.
Current Error	Provides a total summary of all errors that have been found during the current Network Diagnostic session.
Retry	Commands the function to retry a pass. This is used during a single pass selection.
Skip String	This commands the function to skip all controllers within a string that are being scanned. Use this to skip the diagnostic scan of either a level two or a level three string of controllers.
Cancel	This commands the Network Diagnostics function to stop if in the Loop scan mode or closes the dialog box and returns you to setup if a single scan has been completed or a Loop scan has been terminated by a previous Cancel.

Chapter 6 - DataLog Menu

Within the DataLog menu are the following command options.

Setup Trends...

View Trends ▶

Setup Graphs ▶

Graph Trends ▶

Copy DDE Link ▶

View Alarms...

Setup Alarms/Events...

Trend Logging

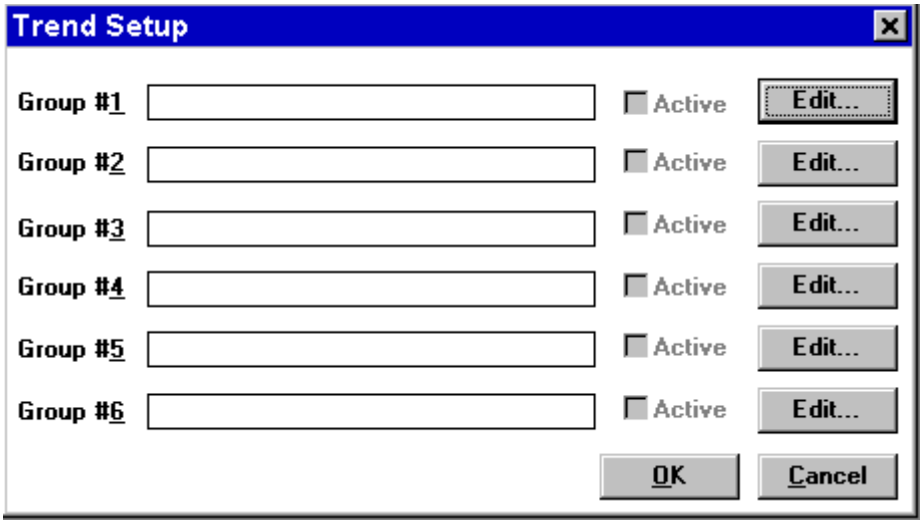
Monitor allows any data-point to be trend-logged. Six groups of data-points may be trend logged. Each group can have up to 16 data points to trend. The data-points in a group can be taken from any screen and can access any controller in the network. The data can be viewed graphically or in a tabular formatted form. In order to choose trend log data points, **Monitor** must be connected to a network or controller. Trend log data may be written to the disk as an ASCII file. To set up trend logging, communications should have been established with the network. All the functions associated with trend logging are available under the DataLog menu. ***View Trends***, ***Setup Graphs***, ***Graph Trends***, and ***Copy DDE Link*** rely on one or more of the six trend groups being active. These menu options will be disabled if none of the groups are active..

When **Monitor** is performing trend logging, the message **DLog** appears on the status bar each time a sample of data is acquired. If writing to disk has been specified, the trend-log information is formatted into columns and written as an ASCII file with the specified filename and extension .CSV. Note that a CSV (comma separated value) format is commonly used for ASCII data exchange and is compatible with applications such as MS Excel and Lotus. If a file by the specified name does not exist, a new file is created otherwise, data is added to the existing file. **Monitor** enters the name of the group and the time when data logging was started as header information in the file. Each log entry begins with a **PC** time-stamp.

Setup Trends

Setup Trends allows the user to select variables within the defined HVAC application windows and display those values in a tabular form or in a graph and/or store those values in a file or into another Windows application through a DDE (Dynamic Data Exchange) link. Trend logging can be either manually initiated or initiate based upon a date/time schedule. Trend logging can only occur when the **Monitor** program is active, either in a full screen or window mode or while minimized.

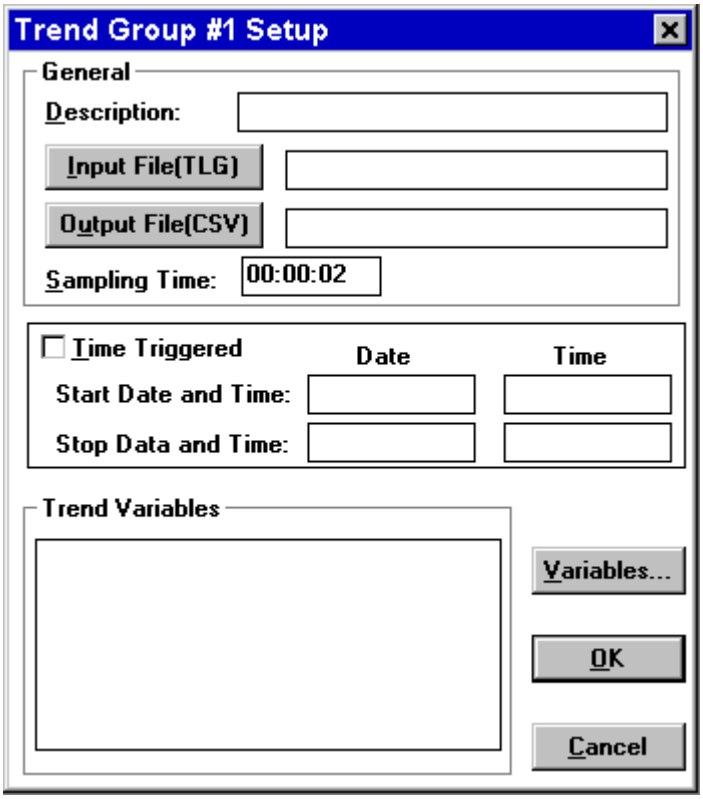
To set up trend logging, click on the *DataLog / Setup Trends* menu. The "Trend Setup" dialog box is displayed.



The following fields are available for each of six groups..

Dialog Box Field	Description
Group #x	Contains the name for Group#x.
Active	Check this box to activate the trend log.
Edit...	Opens the "Trend Group #x Setup" dialog box for the selected group.
OK	Accepts all current changes and closes the "Trend Setup" dialog box.
Cancel	Ignores all current changes and closes the "Trend Setup" dialog box.

Choose Edit to open the "Trend Group #x Setup" dialog box for one of six groups.



The following fields are available within the "Trend Group #x Setup" dialog box.

Dialog Box Field	Description
Description	Type in a unique name for the trend log group. Name may be up to 30 characters in length.
Input File	Opens the "Select File" dialog box and either choose from an existing file list or type in a new file name including a .TLG extension. This file is used to store the setup information.
Output File	Opens the "Select File" dialog box and either choose from an existing file list or type in a new file name including a .CSV extension. This file is used to store trend log data .
Sampling Time	Enter the frequency of the trend log sample.
Time Triggered	Check this box if the trend log is to be confined to a specified date and time period.
Start Date and Time	If time triggered is checked enter date and time to begin trend log.
Stop Date and Time	If time triggered is checked enter date and time to end trend log.
Variables	Opens the "Trend Group #x Variables" dialog box.
OK	Accepts all current changes and closes the "Trend Group #x Setup" dialog box.
Cancel	Ignores all current changes and closes the "Trend Group #x Setup" dialog box.

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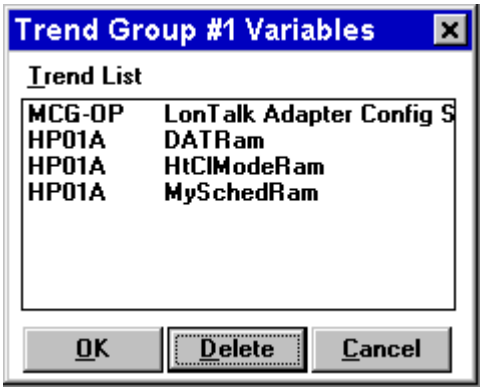
Choose **Variables** to open the "Trend Group #x Setup"



Open one or more of the user screens for the selected unit that contains the data point variable(s) to be selected. Position the selection cursor over the data point. The selection cursor should change from the normal to the symbol. Click on the left mouse button to select the data point. Each selected data point will be added to the list of trend variables. The data point will also include the controller label of the selected unit.

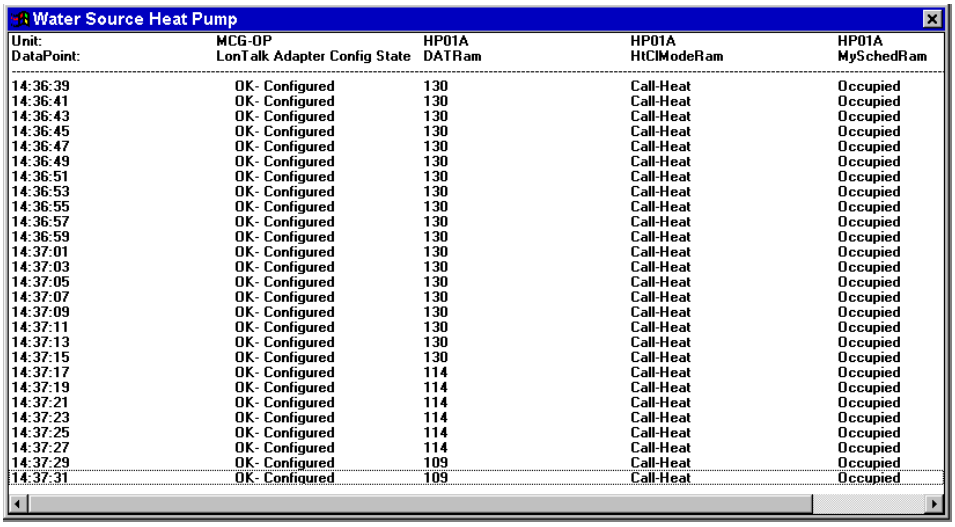
If the mouse is clicked on a data-point that is already in the list, the system beeps. The system also beeps if 16 data-points have been specified for the current group and the mouse is clicked on a new data-point. When **Monitor** has the "Trend Group#x Variables" dialog box open, setpoints cannot be changed.

Delete any data-point from the list by selecting the data-point in the list box and choosing **Delete**. Multiple data-points may be selected and deleted at once. Choose **OK** to accept all current changes, close the "Trend Group #x Variables" dialog box, and return to the "Trend Group #x Setup" dialog box. Choose **Cancel** to close the "Trend Group #x Variables" dialog box dialog boxes without accepting changes and return to the "Trend Group#x Variables" dialog box.

View Trends

When any trend-log group is active, ***View Trends*** is also active. When ***View Trends*** is selected a list will appear to the right of the menu option. This list will display the name of all of the open groups allowing one of them to be chosen.

Choose one of the group names to open the "View Trends" dialog display window.



Unit:	MCG-OP	HP01A	HP01A	HP01A
DataPoint:	LonTalk Adapter Config State	DATRam	HtClModeRam	MySchedRam
14:36:39	OK- Configured	130	Call-Heat	Occupied
14:36:41	OK- Configured	130	Call-Heat	Occupied
14:36:43	OK- Configured	130	Call-Heat	Occupied
14:36:45	OK- Configured	130	Call-Heat	Occupied
14:36:47	OK- Configured	130	Call-Heat	Occupied
14:36:49	OK- Configured	130	Call-Heat	Occupied
14:36:51	OK- Configured	130	Call-Heat	Occupied
14:36:53	OK- Configured	130	Call-Heat	Occupied
14:36:55	OK- Configured	130	Call-Heat	Occupied
14:36:57	OK- Configured	130	Call-Heat	Occupied
14:36:59	OK- Configured	130	Call-Heat	Occupied
14:37:01	OK- Configured	130	Call-Heat	Occupied
14:37:03	OK- Configured	130	Call-Heat	Occupied
14:37:05	OK- Configured	130	Call-Heat	Occupied
14:37:07	OK- Configured	130	Call-Heat	Occupied
14:37:09	OK- Configured	130	Call-Heat	Occupied
14:37:11	OK- Configured	130	Call-Heat	Occupied
14:37:13	OK- Configured	130	Call-Heat	Occupied
14:37:15	OK- Configured	130	Call-Heat	Occupied
14:37:17	OK- Configured	114	Call-Heat	Occupied
14:37:19	OK- Configured	114	Call-Heat	Occupied
14:37:21	OK- Configured	114	Call-Heat	Occupied
14:37:23	OK- Configured	114	Call-Heat	Occupied
14:37:25	OK- Configured	114	Call-Heat	Occupied
14:37:27	OK- Configured	114	Call-Heat	Occupied
14:37:29	OK- Configured	109	Call-Heat	Occupied
14:37:31	OK- Configured	109	Call-Heat	Occupied

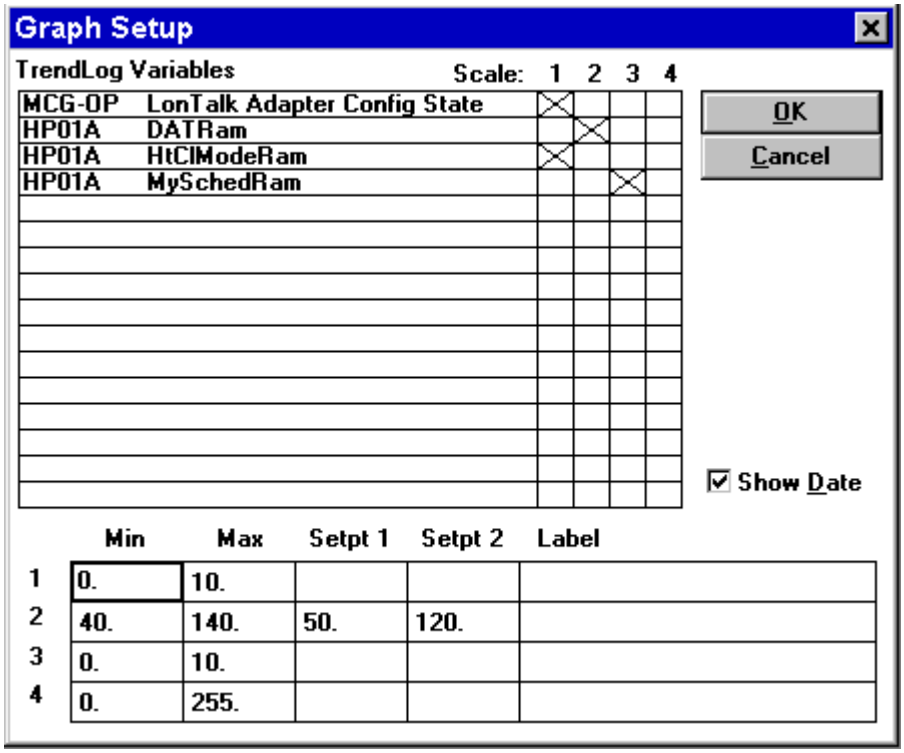
The title of this window will be the name of the group. The window will contain the trend log information and will display a history of the last 20 samples. Each data point will have a column heading to identify each variable and associated controller. The time that the sample was taken is also provided as the first element of each row.

This window may be moved and re-sized. The horizontal scroll bar may be used to bring any part of the data into view. Only one trend-log group data may be viewed at a time. To close the window, double-click on the control menu box at the top left-hand side of the window. Close the current trend log window in order to open another group.

Setup Graphs

When any trend-log group is active, ***Setup Graphs*** is also active. When ***Setup Graphs*** is selected a list will appear to the right of the menu option. This list will display the name of all of the open groups allowing one of them to be chosen.

Choose one of the group names to open the "Setup Graphs" dialog display window.



The title of this window will be the name of the group. Setting up a graph consists of choosing one of four available scales for each of up to sixteen data points and defining parameters for each of the four scales.

The following fields are in the "Graph Setup" dialog box.

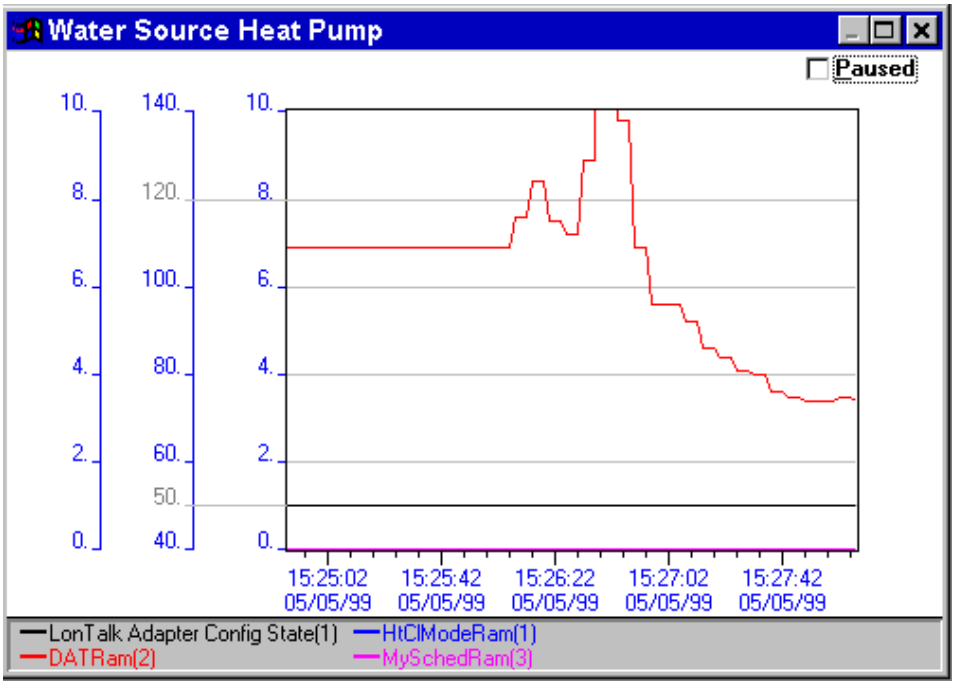
Dialog Box Field	Description
Trendlog Variables	Lists the controller label and the variable name for up to sixteen variables.
Scale	Select any or none of the four available scales to be used as the vertical range marking of the graph.
OK	Choose to accept all current changes and to close the "Graph Setup" dialog box.
Cancel	Choose to ignore all current changes and to close the "Graph Setup" dialog box.
Show Date	Select this if the horizontal time scale is to also include the date.
Min	Type in the minimum value of the range for each of four scales. Default = 0.
Max	Type in the maximum value of the range for each of four scales. Default = 255.
Setpt1 / Setpt2	Type in a value between the minimum and maximum range values to be used as a setpoint marker line to be compared against the actual condition. You can create two setpoint lines.
Label	Type in a label name for each of the four scales.

This window may be moved and re-sized. The horizontal scroll bar may be used to bring any part of the data into view. Only one trend-log group data may be viewed at a time. To close the window, double-click on the control menu box at the top left-hand side of the window. Close the current trend log window in order to open another group.

Graph Trends

When any trend-log group is active, ***Graph Trends*** is also active. When ***Graph Trends*** is selected a list will appear to the right of the menu option. This list will display the name of all of the open groups allowing one of them to be chosen.

Choose one of the group names to open the "View Graphs" dialog display window.



Only one graph can be viewed at a time. While the graph window is active, all other **Monitor** functions like changing screens or changing setpoints can be done. The scales and the variables that are being plotted can be changed at any time by going to the "Graph Setup" dialog box. The window is updated to reflect the new setup.

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Copy DDE Link

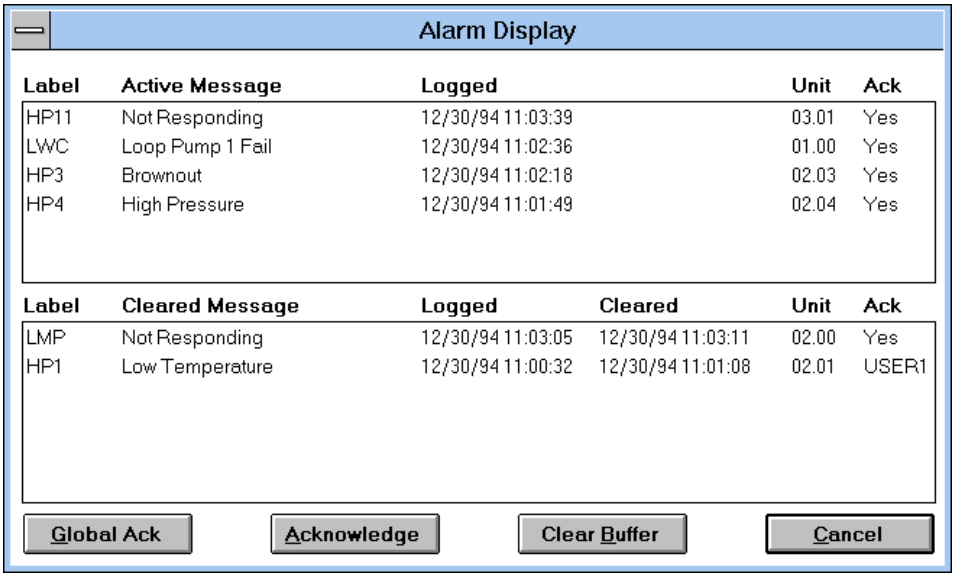
Dynamic Data Exchange (DDE) is a technique that links two applications running in the Windows 3.1 environment allowing them to establish a one-way conversation for updating similar data. It is an automation of the manual "cut and paste" operation. When you choose ***Copy DDE Link*** for an active trend, **Monitor** becomes the "server" for a DDE link. Any changes that occur in the trend data are made available to any "clients" that are linked to the data. A "client" is an application that accepts and processes a DDE link. For more information on DDE links consult Appendix D.

View Alarms

View Alarms provides a dynamic list of network alarms and status. A Network Master Panel (NMP) must be installed in the network for this function to work properly.

There can be as many as 63 alarm records stored in the NMP for retrieval by **Monitor**. When the storage space limit is exceeded, the NMP overwrites the oldest alarm in the buffer and continues to do so when new alarms require logging. This maintains the most recent alarms in the alarm buffer. Note that a separate alarm record is used when an alarm is first logged and when it is cleared. As a result the View Alarms function can display as many as 31 cleared alarms or 63 active alarms or a combination of less than 63 cleared and active alarms.

Choosing View Alarms will open the "Alarm Display" dialog box.


Alarm Display
Label Active Message Logged Unit Ack
HP11 Not Responding 12/30/94 11:03:39 03.01 Yes
LWC Loop Pump 1 Fail 12/30/94 11:02:36 01.00 Yes
HP3 Brownout 12/30/94 11:02:18 02.03 Yes
HP4 High Pressure 12/30/94 11:01:49 02.04 Yes
Label Cleared Message Logged Cleared Unit Ack
LMP Not Responding 12/30/94 11:03:05 12/30/94 11:03:11 02.00 Yes
HP1 Low Temperature 12/30/94 11:00:32 12/30/94 11:01:08 02.01 USER1
Global Ack
Acknowledge
Clear Buffer
Cancel

Each alarm message has the following format.

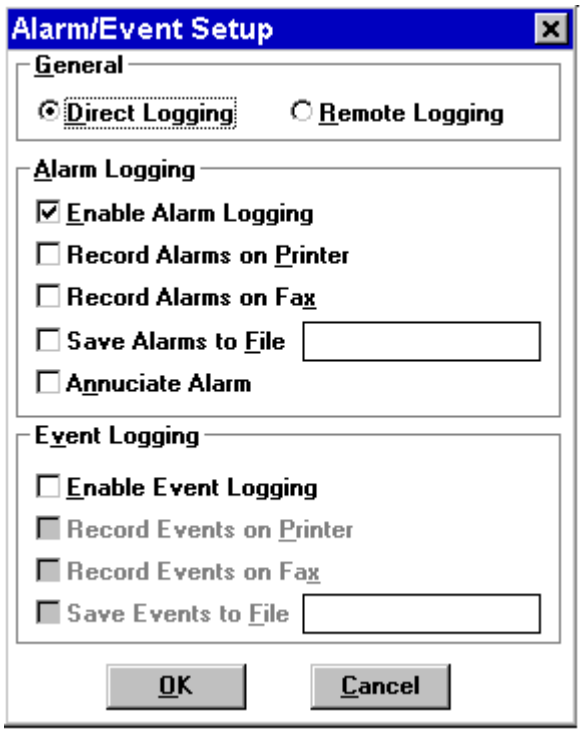
Alarm Message Item	Description
Label	Label descriptor of the controller the alarm is associated with. This is obtained by matching the controller address with the first unit label that matches from the controller unit list.
Message	Appears as either an active or cleared message. Describes the alarm condition.
Logged	Provides the date and the time that the active alarm was logged by the NMP.
Cleared	Provides the date and the time that the cleared alarm was logged by the NMP.
Unit	Provides the network address of the controller that the alarm occurred in.
Ack	If the alarm was acknowledged this will display the name of the user that acknowledged it. If the alarm was acknowledged by a *Daikin factory trained user* this will display "Yes". If the alarm has not been acknowledged this will display "No".

The following command buttons are also available.

Dialog Box Field	Description
Global Ack	Acknowledge all alarms that are in the alarm buffer of the NMP.
Acknowledge	Acknowledge selected alarms only.
Clear Buffer	Clears the NMP alarm buffer and resets the **Monitor** alarm pointers. This will also generate an event for the NMP.
Cancel	Close the "Alarm Display" dialog box. Does not cancel alarm acknowledgment or clearing the NMP alarm buffer.

Setup Alarms/Events

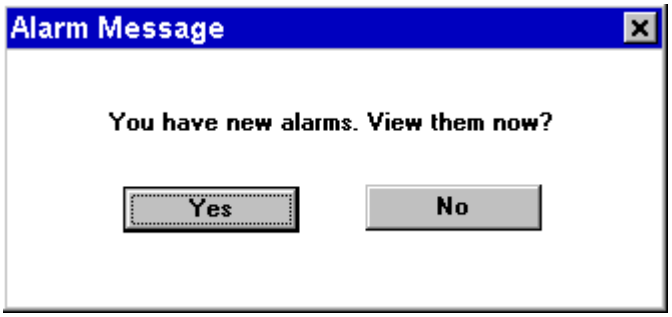
Setup Alarms/Events will open the "Alarm/Event Setup" dialog box for defining the parameters for alarm and event logging.



The dialog box is broken up into the fields, General, Alarm Logging, and Event Logging with two additional command buttons.

Dialog Box Field	Description
General	• **Direct Logging -** select to enable the "direct logging" mode. Refer to Appendix B. • **Remote Logging** - select to enable the "remote logging " mode. Refer to Appendix B.
Alarm Logging	• **Enable Alarm Logging** - check this box to enable the alarm logging feature of **Monitor**. Upon initialization the alarm buffer in the NMP will be read to display all current alarm conditions. Every 15 seconds thereafter **Monitor** will read the NMP to check for new alarms and display them as needed. During that time a Dlog message will appear in the status bar delaying any response to keypad or mouse activity. Whenever a new alarm is received a message dialog box will occur asking if you want to view the alarms now. Checking this box will also enable access to the following features. • **Record Alarms on Printer** - check this box to record new alarms as they occur onto the line printer as defined in the "General Setup Parameters" dialog box of the Support menu's ***General Setup*** command option. • **Record Alarms on Fax** - check this box to send out new alarms as they occur using a data fax format as defined in the "General Setup Parameters" dialog box of the Support menu's ***General Setup*** command option • **Save Alarms to File** - check this box to record new alarms as they occur into a designated file. • **File** - type in the name of the designated file used for storing alarms. • **Annunciate Alarm** - check this box to continuously annunciate unacknowledged alarm. A menu heading by the name "Alarm" will appear between the Support and Window menu . Every ten seconds the background color of this menu will toggle between green and red. An audible beep will also occur every ten seconds.
Event Logging	• **Enable Event Logging -** check this box to enable the event logging feature of **Monitor**. Checking this box will also enable access to the following features. Refer to Appendix B for further details. • **Record Events on Printer** - check this box to record new events as they occur onto the line printer as defined in the "General Setup Parameters" dialog box of the Support menu's ***General Setup*** command option. • **Record Events on Fax** - check this box to send out new events as they occur using a data fax format as defined in the "General Setup Parameters" dialog box of the Support menu's ***General Setup*** command option • **Save Events to File** - check this box to record new events as they occur into a designated file. • **File** - type in the name of the designated file used for storing events.
OK	Accepts all current changes and closes the "Alarm/Event Setup" dialog box.
Cancel	Ignores all current changes and closes the "Alarm/Event Setup" dialog box.

When new alarms occur the following dialog box is displayed provided that Alarm Logging has been enabled.



Chose **Yes** to open the "Alarm Display" dialog box. Choose **No** to close this message box without any action.

Chapter 7 - Support Menu

Within the Support menu are the following command options.

Read/Write...

Download...

Show Data File...

Network Passwords...

User Passwords...

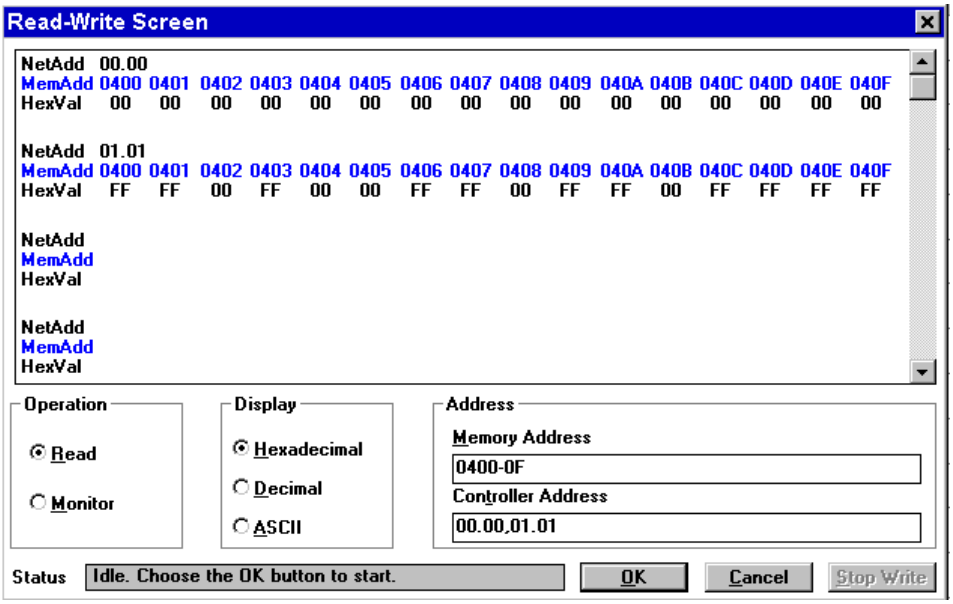
Log-out...

Set Controller Clock...

General Setup...

Read/Write

Read/Write will open up the "Read/Write Screen." This gives the capability to view and/or alter data from absolute memory addresses within any MicroTech controller. This function is only accessible to a User that is at an Authorization Level of one or to any *Daikin Factory trained user*. This function should only be used by persons who have been directed to by Daikin or by persons who know the significance of the memory addresses as they relate to the controller and to the application program. The disclosure of memory addresses is controlled by Daikin.



The "Read/Write Screen" contains five information fields. These are the Operation, Display, Address, Status, and the data field.

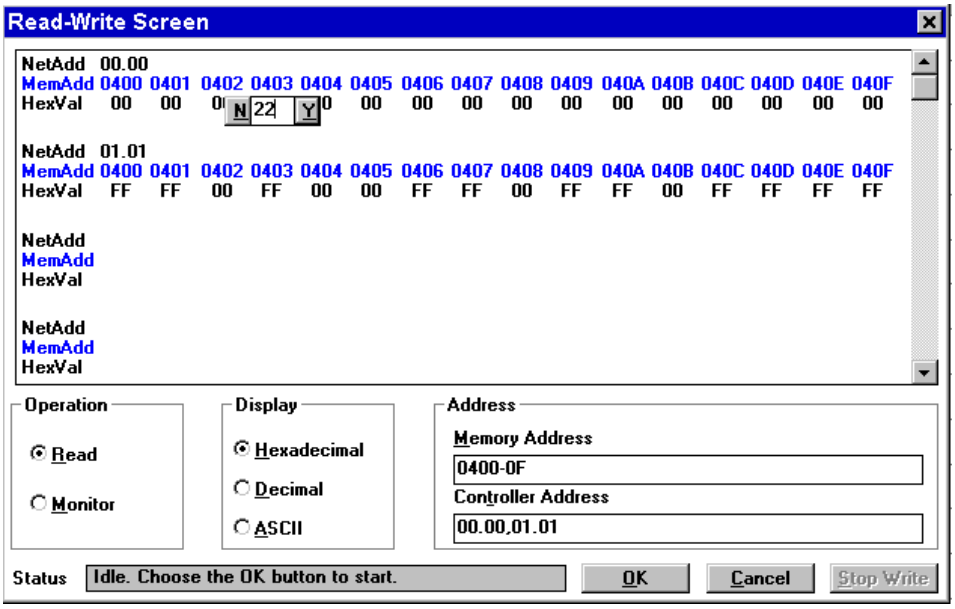
Dialog Box Field	Description
Operation	This field contains the Read and **Monitor** options buttons. If Read is selected the data is read in one pass. Once the data is read the display becomes idle. To re-read the data choose the OK command button. If **Monitor** is chosen the selected data is read in a continuous loop. As the information is continuously read, any updated data is displayed.
Display	This field contains three option buttons. This determines in what format the data will be displayed. and written into selected memory locations. Select either hexadecimal, decimal, or ASCII (American Standard Code for Information Interchange, a standard used for converting a byte of hexadecimal data into alphanumeric characters.).
Address	This field has two sections, that of the memory address and of the controller address. The data address may be of a single memory location or a range of locations up to 99 characters. It should be entered using one of the acceptable formats as described in Appendix C. The controller address may be that of single controller or a range of controllers up to 99 characters. It should be entered using one of the acceptable formats as described in Appendix C. It will accept up to 99 characters.
Status	Displays the status of the Read/Write operation.
Data	Displays the requested data in the appropriate display format. This field has a vertical scroll bar which allows specifying memory ranges that will not fit in a single window. The data window has the capacity of displaying 4 rows of 16 elements each.

The following command buttons are also available.

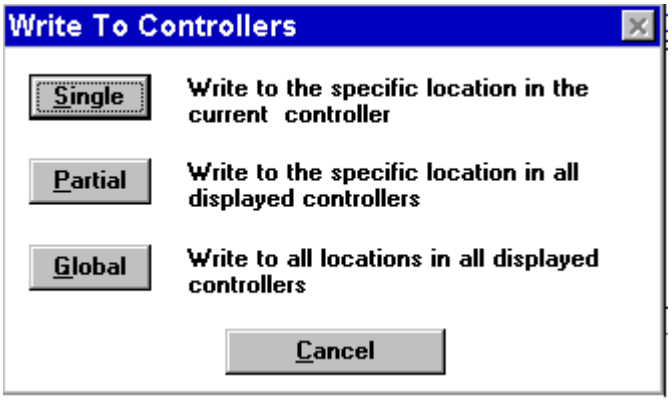
Dialog Box Field	Description
OK	Choose **OK** to accept changes made in the Address field or to re-scan the data for a Read operation.
Cancel	Choose **Cancel** to close the Read-Write Screen and disregard any changes made to the Address field prior to choosing **OK.**
Stop Write	Choose **Stop Write** when doing a Global or Partial write to stop the write at the point **Monitor** is at. **Monitor** will not rewrite to memory locations already written to.

How to Write Data to a Memory Location

To write data, simply move the selection cursor within the data field to the value you wish to change and click the left mouse button. The data will become a small dialog box with a text box field and two small command buttons labeled N and Y. Use the text box to enter the desired value in hexadecimal, decimal, or ASCII depending upon the selected format.



Once the text is entered chose **Y** to write the change to the controller or **N** to cancel the write before its performed. Choosing **Y** will open the "Write to Controller" dialog box.


Write To Controllers
Single
Write to the specific location in the current controller
Partial
Write to the specific location in all displayed controllers
Global
Write to all locations in all displayed controllers
Cancel

The "Write to Controller" dialog box has the following options.

Option	Description
Single	Allows a write to the selected controller and memory location only.
Partial	Allows a write to single selected memory locations in all selected controllers.
Global	Allows writing to all selected memory locations in all selected controllers.
Cancel	Cancels the write and closes the dialog box.

Note: A write to multiple controllers and/or multiple memory locations may be stopped by choosing the **Stop Write** command button. This will only stop the process where it is and will not reset memory locations that have been written to back to their previous values.

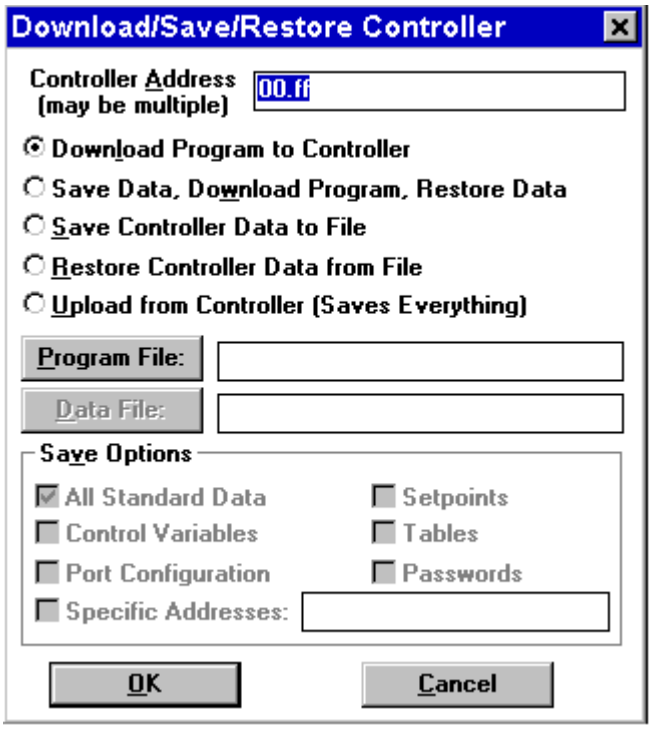
Download

Download either downloads application code into and/or restores previously saved data into or uploads application code from or saves selected data from a MicroTech controller.

Downloading application code requires knowing controller addresses, program file names, and the effects of upgrading codes from previous versions to determine what parameters can and/or should be saved and restored. This information will be provided during a job start-up as part of the software release form and/or through an on-line accessible help file. Whenever a software upgrade is required, this information will also be made available. Both downloading and restoring data will interrupt the operation of a MicroTech controller and should only be done when necessary or bringing the unit down is compensated for.

Uploading requires knowing the controller address only. Uploading will not affect the operation of a controller and can be done at any time. The file name to upload into is selected by the user and is used for unique identification of data records only.

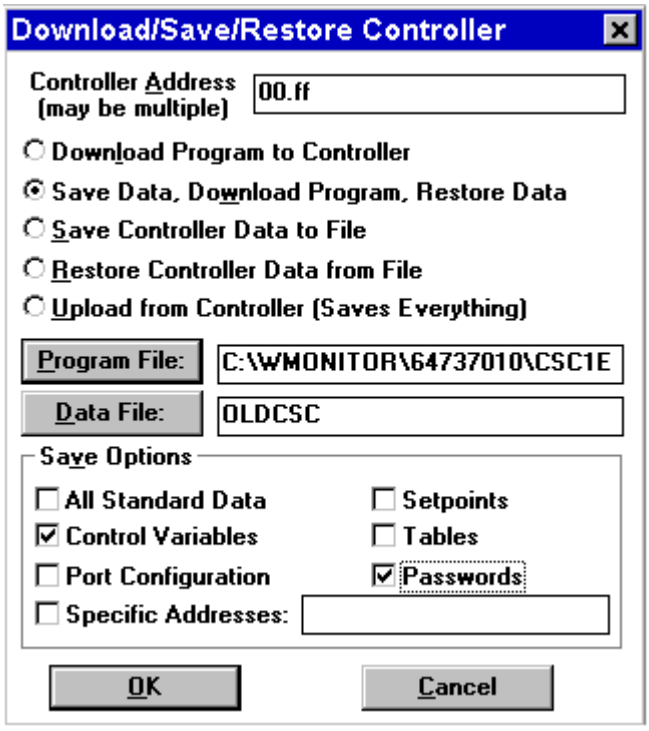
Choosing ***Download*** opens the "Download/Save/Restore Controller" dialog box.



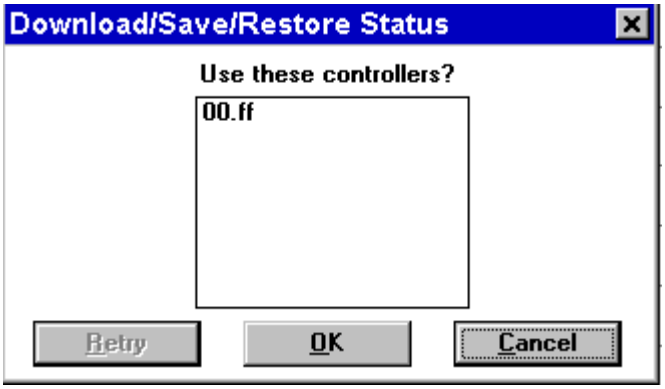
The "Download/Save/Restore Controller" dialog box contains five information fields. These are Controller Address, Download Options (unlabelled), Program File, Data File, and Save Options and include two additional command buttons.

Dialog Box Field	Description
Controller Address	Data entry into this field conforms with the standard entry format described in Appendix 3 (Network Architecture and Addressing) with one exception. Entering a * will allow saving, restoring, or uploading from every controller on the network.
Download Options	This field contains five option buttons used to select the function option. Additional fields will be enabled for entry or selection depending upon the selected option as described below: • **Download Program to Controller**; performs the downloading of file *.cod selected without saving or restoring any current information contained in the controller. Enables "Program File". • **Save Data, Download Program, Restore Data;** saves selected current data, performs download, then restores the saved information as one operation. Enables "Program File", "DataFile" and "Save Options". • **Save Controller Data to File**; saves selected information for archival purposes. Enables "Data File" and "Save Options". • **Restore Controller Data from File**; restores previously saved data. Enables "Data File" only. • **Upload from Controller (Saves Everything)**; in addition to saving all standard data will save the application program in selected controllers. Enables "Data File" only.
Program File	Choose the **Program File** command button to open up the "Open EPL Code File" dialog box from which the correct *.COD file is selected to be downloaded or type the file name and path (if not the current path) into the edit control box directly.
Data File	Choose the **Data File** command button to open up the "Open Controller Data File" dialog box from which file name header is selected to save data in or type the file name and path (if not the current path) into the edit control box directly. The Download function will modify the file name so that the last two characters before the period and the first two characters of the extension will comprise the network address for the controller that information is being saved from.
Save Options	Use the check boxes in this field to select the type of data that will be stored during a save operation. • **All Standard Data**; will save Setpoints, Control Variables, Tables, Port Configurations, and Passwords. If this option is selected it will clear any other checked box. • **Setpoints**; will save only data stored as setpoint variables beginning with memory location $0900. • **Control Variables**; will save only data stored as control variables beginning a memory address $0800. • **Tables**; will save only data stored in tabular arrays beginning at memory location $1000. • **Port Configuration**; will save the data necessary for setting up the communications ports on the MicroTech controller including baud rate, network level, and number of designated slaves. • **Passwords**; will save the data terminal connect passwords that restrict unauthorized communication with a MicroTech controller. • **Specific Addresses**; use this to designate specific memory addresses to be saved. This requires advanced knowledge of memory locations or specific downloading instructions.
OK	Choose **OK** to accept changes and begin the download /upload process
Cancel	Choose **Cancel** to close the "Download/Save/Restore Controller" window.

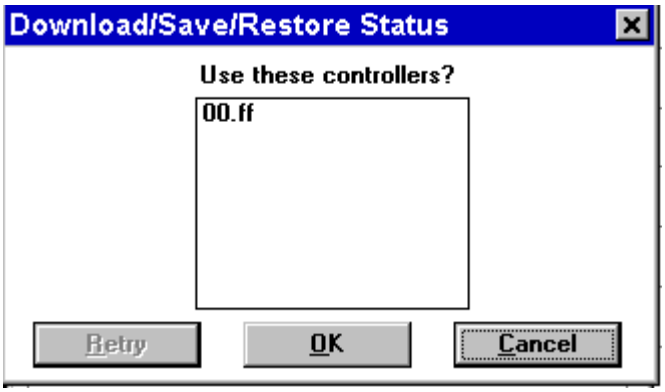
Once all of the set-up information is completed, choose **OK** to begin the download process.



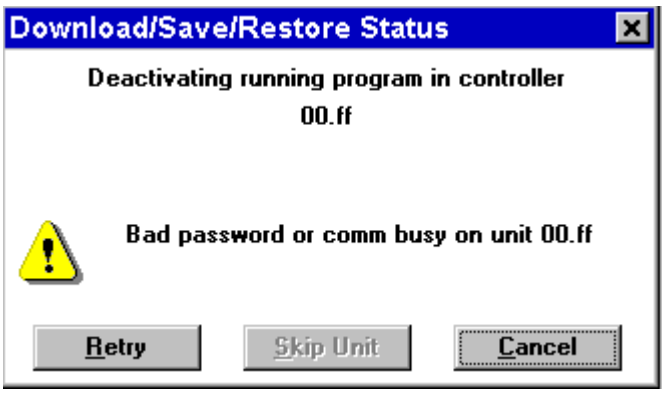
The download process begins by requesting verification of the controllers to be used. If any mistake is realized at this point simply choose **Cancel** to return to the previous dialog box**.**



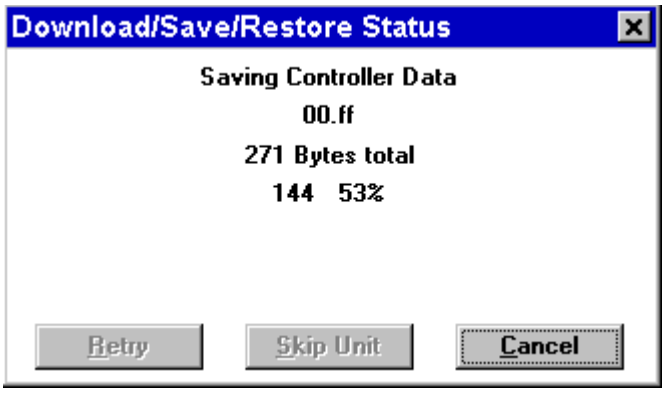
If **OK** is chosen, **Monitor** will attempt to communicate with each listed controller. At this point, the **Skip Unit** and **Cancel** command buttons are available to choose. If you are aware of any problems with the ability to communicate with the displayed controller, choosing **Skip Unit** will bypass checking that unit. If there are multiple units, **Monitor** will move to the next unit in the list.



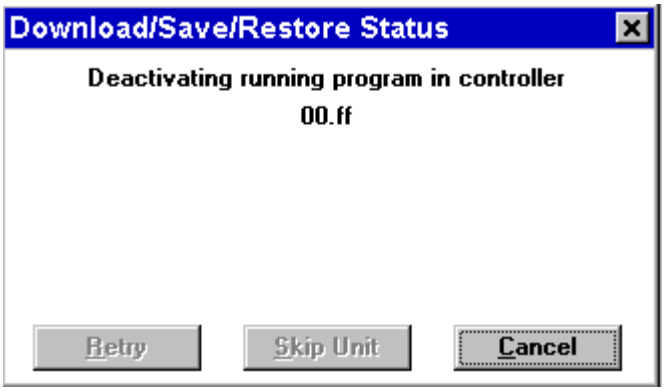
If communications problems occur while checking a controller the **Retry** command button becomes available. The choices available at this point are **Retry**, **Skip Unit**, and **Cancel**.



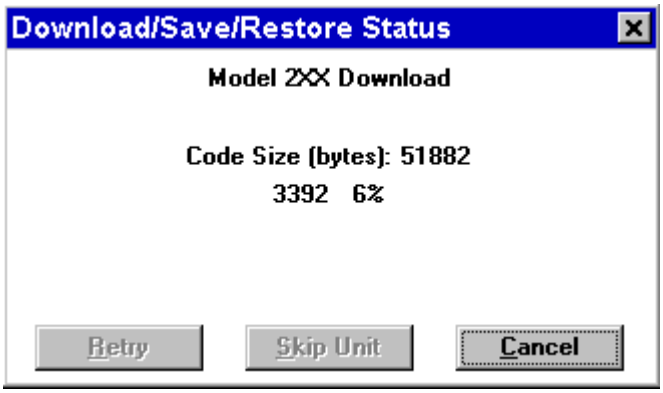
If communications are successful, **Monitor** begins by saving data from the controller. **Cancel** is the only command button available at this time.



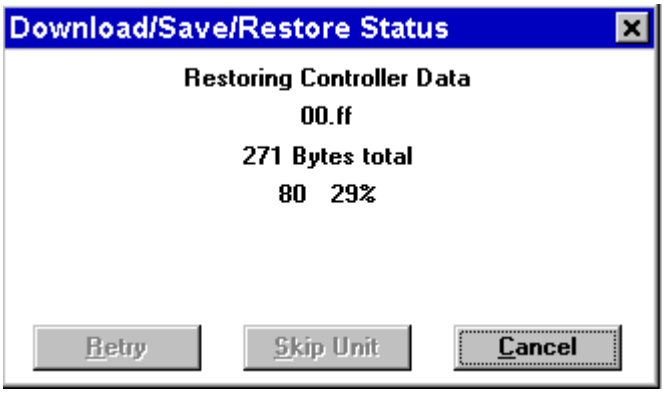
Once the save process is completed, **Monitor** will deactivate the current application code running in the selected controllers by corrupting program checksums and restarting each controller. This insures that no outputs are on while downloading new application code or settings. **Cancel** is the only command button available at this time.



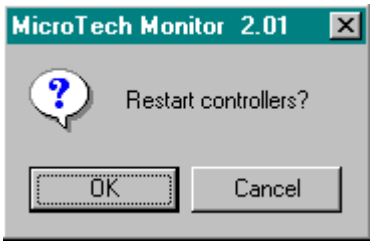
Once the program is deactivated, **Monitor** begins writing the new code into one or more controllers. **Cancel** is the only command button available at this time.



After downloading of new code is complete, **Monitor** restores the data (if any) that was saved. **Cancel** is the only command button available at this time



After all of the new code has been downloaded to each controller and/or the saved data has been restored, **Monitor** asks if it should restart controllers. Choose **OK** to restart each controller or **Cancel** to end download without restarting the controllers.



If **OK** is chosen, **Monitor** will attempt to restart each controller. If the download was to a directly connected unit, **Monitor** will first restart the unit, then re-establish a connection to the unit (baud rate and password), and then restart the controller again. **Cancel** is the only command button available at this time

Monitor reads the checksums in the unit to verify the success of the download. A final dialog box appears if the download process was properly completed.

Show Data File

Show Data File uses the pre-defined Open File dialog box to choose a file for viewing. This function is for viewing trend-logged data files but may be used to view any text file. Once the file is chosen, a data window equipped with scroll bars (if necessary) will display the contents of the file. This data window will have the characteristics of a dialog box and will include a control-menu box.

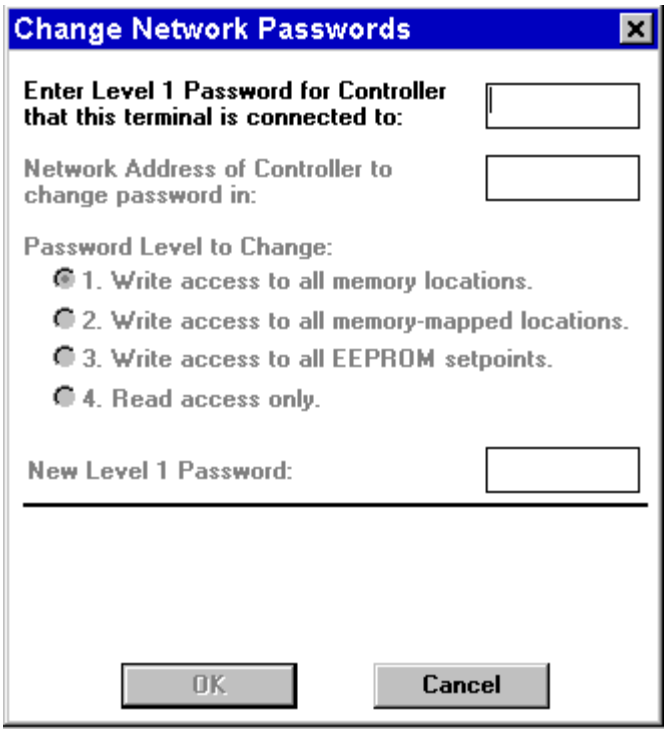
This function is used to view the data files created by **Monitor**:

Data File Type	Description
*.CSV	Comma separated value format used to store data from the trend-log and group screen report functions.
*.LOG	Used to store data collected during network diagnostics.
*.CHG	Used to store any changes made (writes) by a user to any value while in an application screen.

Network Passwords

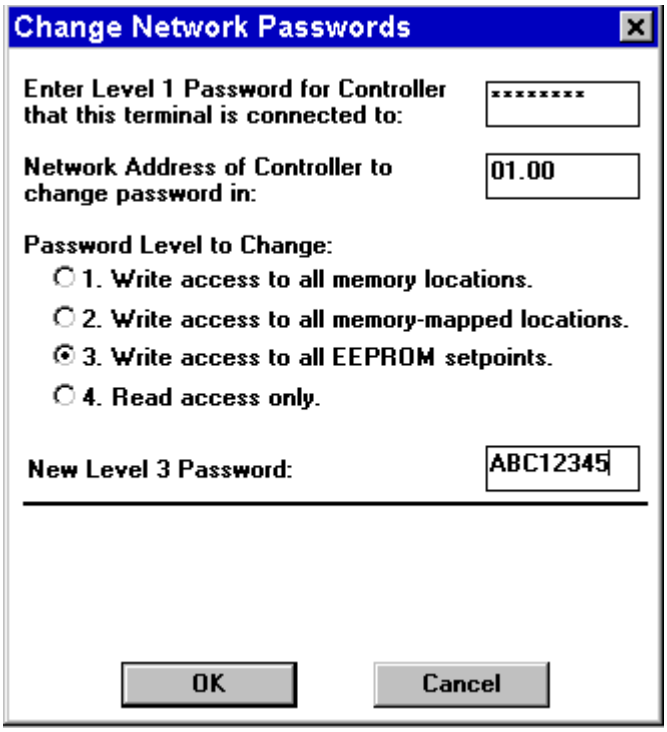
Network Passwords command option is restricted to *Daikin factory trained users*. This option will be grayed out to all untrained users.

Choosing this option provides a utility to change the access passwords contained in a MicroTech controller. To enable the options contained in the dialog box, it is first necessary to enter the Level 1 password that **Monitor** is directly communicating with.


Change Network Passwords
Enter Level 1 Password for Controller that this terminal is connected to:
Network Address of Controller to change password in:
Password Level to Change:
1. Write access to all memory locations.
2. Write access to all memory-mapped locations.
3. Write access to all EEPROM setpoints.
4. Read access only.
New Level 1 Password:
OK
Cancel

The next step is to enter the network address for the controller that a password change is to be requested. The password level is then selected from the option buttons. Finally the new password is entered**. Note: a legitimate password consists of eight hexadecimal characters.**

Choose **Cancel** to close the dialog box without any changes taking place. Choose **OK** to proceed with changing the password. A dialog box will appear requesting confirmation of the intended change. Choose **No** to close that dialog box and return to the "Change Network Passwords" dialog box to make changes. Choose **Yes** to proceed with the change. The change will either be successful or not.


Change Network Passwords
Enter Level 1 Password for Controller that this terminal is connected to:
****
Network Address of Controller to change password in:
01.00
Password Level to Change:
1. Write access to all memory locations.
2. Write access to all memory-mapped locations.
3. Write access to all EEPROM setpoints.
4. Read access only.
New Level 3 Password:
ABC12345
OK
Cancel

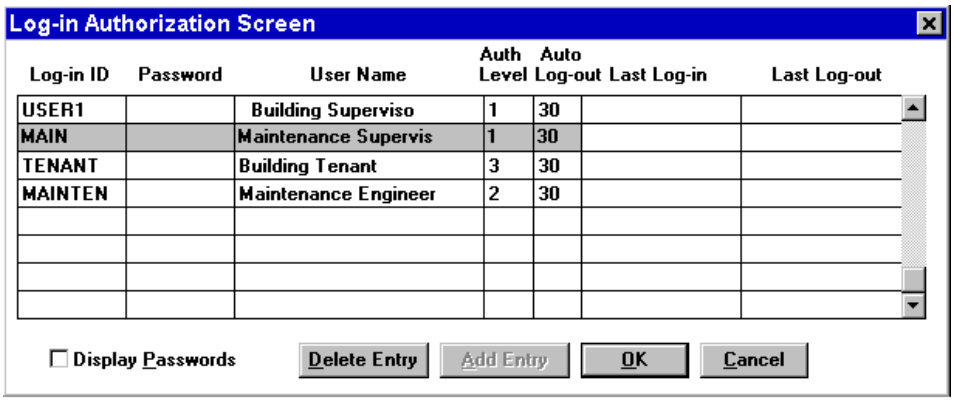
If successful you will be requested to change another password level. Choosing **Yes** will return you to the Change Network Passwords dialog box to select another password level and /or new password. Proceed as before. If you choose **No**, you will be requested to restart the controller to assure that the program checksums are not corrupted.

Choose **Yes** to insure that the program in the controller will be running after leaving this function. **Monitor** will restart the controller and indicate the status of the checksums by a dialog box with the text that simply reads “Done”. Choosing **No** will generate a warning that checksum may be invalid.

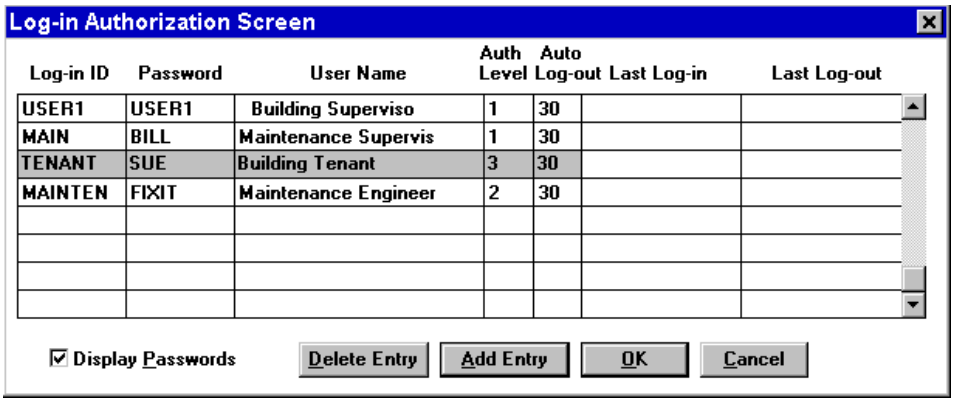
The status of changing the password will be displayed in the parent dialog box .If unsuccessful the reason will be displayed. You may either make appropriate changes to the setup and choose **OK** or choose **Cancel** to leave this command option.

User Passwords

User Passwords allows the building operator to set-up, alter, and view users allowed access into **Monitor**. Only a user with authorization as high as level one can access this function. Selected functions and setpoints within **Monitor** have been defined for use by persons with different levels of authorization. This is to protect against unauthorized changes to the HVAC equipment.



Select the Display Passwords check box to enable adding new users.



Type in the appropriate information and choose **OK** to accept.

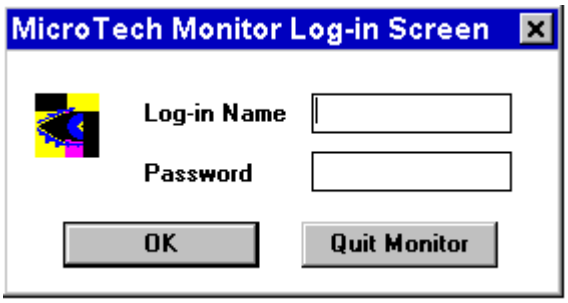
Field Label	Description
Log-in ID	A character string used to identify the user to **Monitor**. It can be as long as will fit in the space provided (recommend a short name of six characters or less). Combining the Log-in ID and the password provides entry to **Monitor**.
Password	A character string used to identify the user to **Monitor**. It can be as long as will fit in the space provided (recommend a short name of six characters or less). Combining the password and the Log-in ID provides entry to **Monitor**.
User Name	A character string that describes the user to the operator (level one user). This can be up to 20 characters long. including spaces.
Auth Level	A number defining the level of authorization. Anything below level 1 (levels 2..255) are not allowed access to the Read/Write, Download, and User Password command options.
Auto Log-out	A time value, in minutes, that will cause the automatic log-out of a user if there is no user activity within **Monitor**. Once logged out the user may re-enter or exit **Monitor**.
Last Log-in	Records the time and date of the last log-in for that user.
Last Log-out	Records that time and date of the last log-out for that user.

When choosing **Add Entry, Monitor** will provide default Log-in ID, password, Auth Level, and Auto Log-out values of NEWUSER, NEWUSER, 1, and 0. Type over the information provided in order to change it.

Log-out

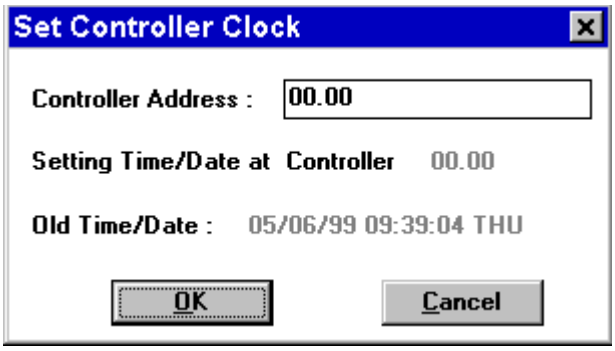
Log-out will log out the user while allowing **Monitor** to continue to run in the background. Any data logging functions will remain active at this time. If an event occurs requiring action the user will be notified through a pop-up dialog box. This has the same effect of minimizing **Monitor** except that restoring the application requires a Log-in name and password.

Once logged out, the user can either log-in using the same or different user information or exit **Monitor**.



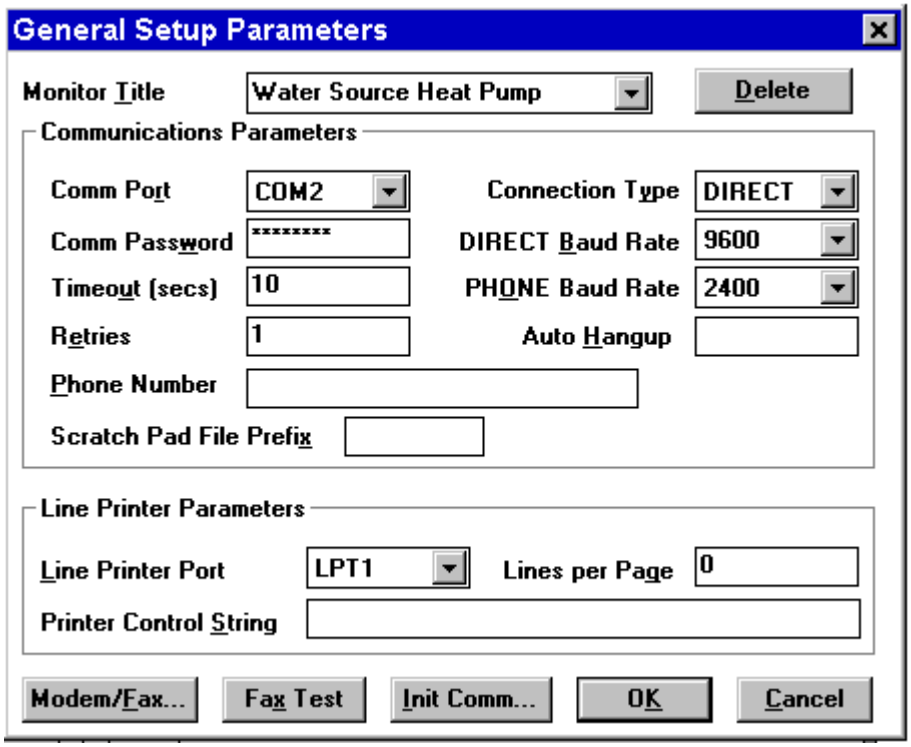
Set Controller Clock

Set Controller Clock provides an automatic reset of the calendar/clock in any MicroTech controller. The information that defines the date and time for the P.C. that is running **Monitor** is transferred into the selected controller. Type in the controller's network address or a range of addresses and choose **OK**. Choose **Cancel** to terminate the changing process. Once completed, **Cancel** will change to **Exit**. Choose **Exit** to close the dialog box.



General Setup

General Setup will open the "General Setup Parameters" dialog box.

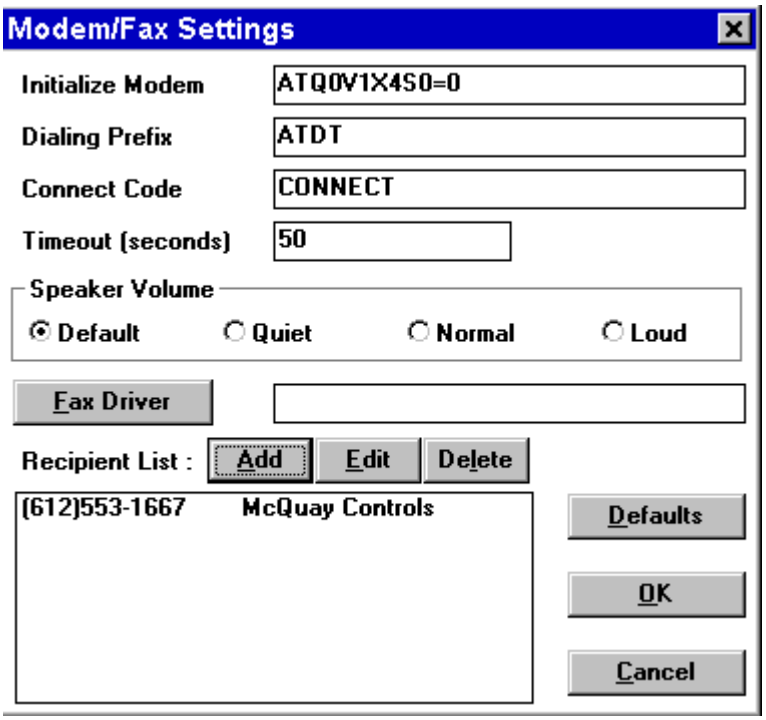


Options affecting Communication

The options that are available allow the complete setup of communications parameters for **Monitor** to allow both direct and telephone connection.

Dialog Box Field	Description
Monitor Title	Type in a new **Monitor** name or select a previously defined one from a pulldown list. Name must be unique and is limited to ***xxxx*** characters. Choose **Delete** to erase the parameters of a selected **Monitor** title group.
Communications Parameters	Select parameters for DIRECT or PHONE connection to a MicroTech controller. • **Comm Port** - Choose COM1, COM2, COM3, or COM4 for direct serial communications. Refer to the hardware setup of the PC to determine the proper serial port assignment. • **Comm Password** - Appears in hidden form except for *Daikin factory trained users*. Used for initial communications attempt by **Monitor**. • **Timeout** - The amount of time in seconds that **Monitor** waits before indicating a comm problem with any controller • **Retries** - The number of elapsed timeouts after a comm problem is found before indicating a no response with any controller. • **Phone Number** - Enter the phone number dialing string for telephone communications. This may include any special characters allowed by the modem being used. Refer to the documentation provided with the modem. • **Connection Type** - Select either DIRECT or PHONE for type of communications. • **DIRECT Baud Rate** - Select the initial baud rate to be used for DIRECT connection attempts. Note that all listed baud rates will be attempted unless a connection is made. • **PHONE Baud Rate** - Select the baud rate to be used for the modem connection. This baud rate must match that of the MicroTech controller that you are attempting to connect with. • **Auto Hangup** - Amount of time in minutes to terminate a telephone connection after there has been no user activity in **Monitor.**
Modem/Fax	Open the "Modem/Fax Settings" dialog box for setup of the modem and fax requirements.
Fax Test	Send out a test message to all recipients defined in the "Modem/Fax Settings" dialog box. The test message is made available for modification before it is sent. It can be up to 79 characters in length.
Init Comm	Save all current changes and initiate a communications attempt.
OK	Save all changes and close the dialog box.
Cancel	Erase all changes and close the dialog box.

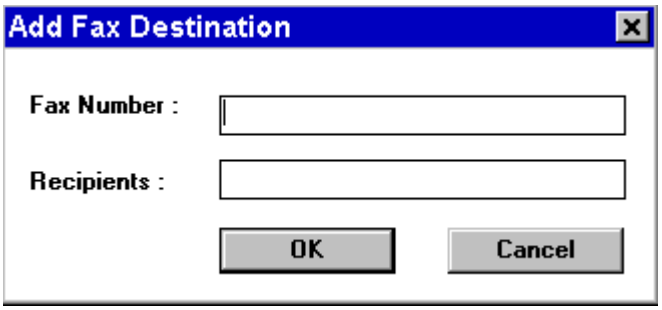
When you choose **Modem/Fax**, the "Modem/Fax Settings" dialog box is opened.



The following information is contained within the "Modem/Fax Settings" dialog box.

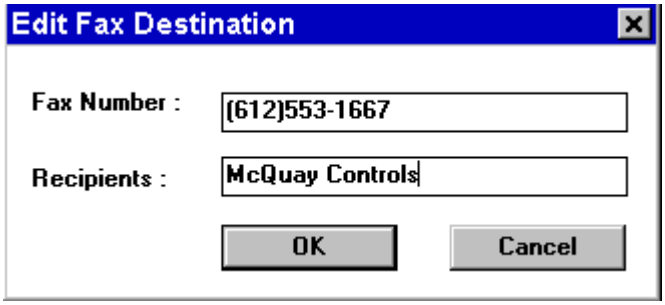
Dialog Box Field	Description
Initialize Modem	Enter or modify any field initialization commands for the modem to be used before initiating a telephone call. Refer to the technical documentation provided with the modem. **Monitor** requires minimum requirements of: E1 - Local echo enabled (set by **Monitor** automatically) Q0 - Display result codes V1 - Display codes in verbal format X4 - Advanced set of response codes to enhance **Monitor's** responsiveness.
Dialing Prefix	Enter the modem command prefix to be used directly before the phone number. ATDT - Tone (Touch-Tone) dialing ATDP - Pulse (rotary) dialing
Connect Code	The connection string sent by the modem to **Monitor** to indicate a successful modem to modem connection.
Timeout (seconds)	Amount of time that **Monitor** waits for a response from its linked controller after the modem to modem connection is established.
Speaker Volume	Set the speaker volume on the modem for the user's preference.
Fax Driver	Assign the WinFax Pro 4.0 driver as the specific printer selection. (Requires WinFax Pro 4.0 by Delrina.) Choose **Fax Driver** to open the "Print Setup" dialog box.
Recipient List	Allows you to create and modify a list of up to eight fax recipients. Choose Add to open the "Add Fax Destination" dialog box. Select a recipient from the list and choose **Edit** to open the "Edit Fax Destination" dialog box. Select a recipient from the list and choose **Delete** to erase the recipient information.
Defaults	Will re-assign the factory defaults for the Initialize Modem, Dialing Prefix, Connect Code, and Timeout fields.
OK	Accepts all current changes and closes the dialog box.
Cancel	Ignores all current changes and closes the dialog box.

When **Add** is chosen, the "Add Fax Destination" dialog box is displayed.



Fill in the fax number and name of recipient. Choose **OK** to close the dialog box and accept all current changes or **Cancel** to close dialog box without accepting changes.

When **Edit** is chosen, the "Edit Fax Destination" dialog box is displayed.



Fill in the fax number and name of recipient. Choose **OK** to close the dialog box and accept all current changes or **Cancel** to close the dialog box without accepting changes.

Line Printer Options

Additional options allow setup of the line printer and file location and retrieval parameters.

Dialog Box Field	Description
Line Printer Parameters	Assign parameters for setting up the printer for on-line record keeping. • Line Printer Port - Select either LPT1,2,3, or 4 for parallel printer connection Refer to the hardware setup of the PC to determine the proper parallel port assignment. • Printer Control String - Type in initialization string , if necessary, provided with your printer's documentation. • Lines per page - Set the maximum lines to be printed per page.

Chapter 8 - Window Menu

Within the Window menu are the following command options.

Cascade

Tile Horizontal

Tile Vertical

Arrange Icons

1 First Open Window

2 Second Open Window

3 Third Open Window

4 Fourth Open Window

5 Fifth Open Window

6 Sixth Open Window

7 Seventh Open Window

8 Eight Open Window

9 Ninth Open Window

More Windows

The **Window** menu provides a means to display and retrieve multiple open application screen and group screen windows. You can use the cascade and tile command options to rearrange application and group screens so that all open windows are visible in the screen area. These commands will only work with open windows that are maximized or sized.

Cascade

Cascade causes windows to overlap so that their title bars are all visible. You can then select any application or group screen and make it active, maximize it, re-size it, or minimize it.

Tile Horizontal/Tile Vertical

Tile Horizontal and ***Tile Vertical*** causes the windows to be arranged either horizontally or vertically. This allow the user to close or minimize unwanted windows, maximize a single window, or arrange and re-size multiple windows.

Arrange Icons

When open windows are minimized they are displayed as icons. ***Arrange Icons*** will arrange the icons in order from left to right at the bottom of the screen area. This function is only used with Windows 3.X.

Open Windows

What follows in the menu is a list of open windows with a check mark to the left of the currently active window. The list is ordered by the sequence in which the windows were opened. Simply choose the window that you wish to view. If the window is minimized it will resume the form it was in when it became minimized (sized or maximized). The list will be limited to last four application screens that had been opened and an unlimited number of open group screens.

When the list exceeds nine open windows, the ninth selection is that of the last window that was opened. The tenth selection displays More Windows. When More Windows is selected the "Select Window" dialog box is opened. This contains a pulldown listbox and a vertical scroll bar for selecting the desired window to view.

Chapter 9 - Help Menu

Within the Help menu are the following command options.

Help on Monitor...

Help on Application #1

Help on Application #2

Help on Application #3...

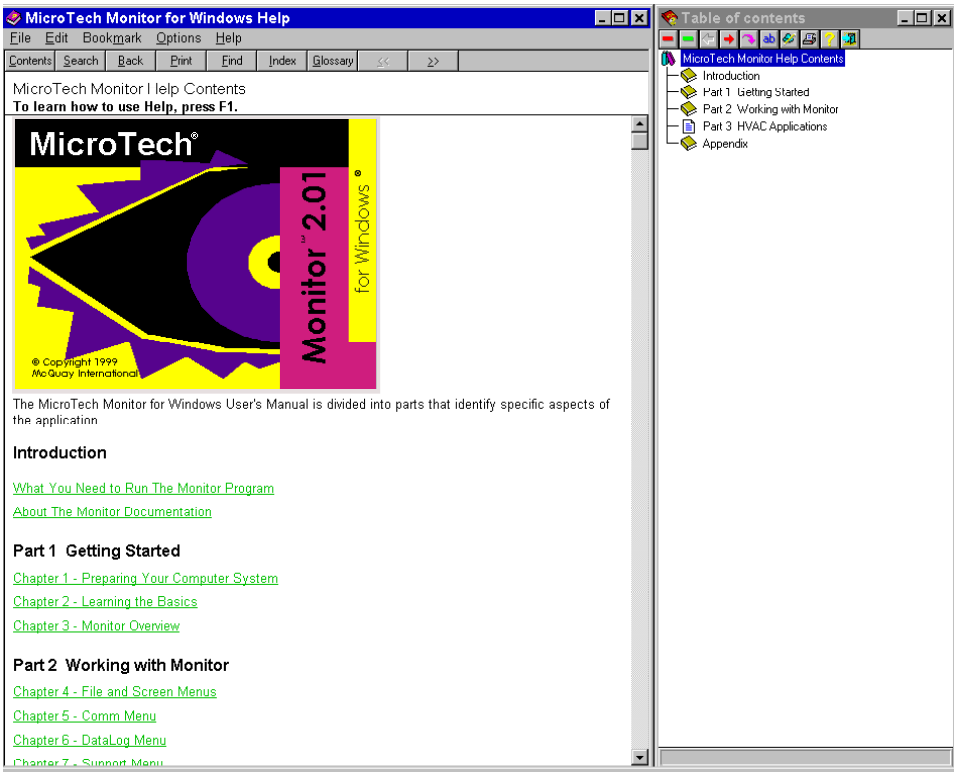
Help on YOURJOB...

About Monitor...

Help on MicroTech Monitor

Help on MicroTech Monitor opens the user up to an on-line help facility which is essentially this user's manual. The help utility uses the basic Windows format for navigation and selection. A complete on-line manual on how to use Help is available within Help. Simply choose the ***How to Use Help*** from the ***Help*** menu of the ***Help on MicroTech Monitor*** of **Monitor**.

The following example shows the command buttons that are available from a help screen. Additional navigation is made possible by choosing key-words that are found within the text.


MicroTech Monitor for Windows Help
File Edit Bookmark Options Help
Contents Search Back Print Find Index Glossary << >>
MicroTech Monitor Help Contents
To learn how to use Help, press F1.
MicroTech®
Monitor™ 2.01
for Windows®
© Copyright 1999
McQuay International
The MicroTech Monitor for Windows User's Manual is divided into parts that identify specific aspects of the application.
Introduction
What You Need to Run The Monitor Program
About The Monitor Documentation
Part 1 Getting Started
Chapter 1 - Preparing Your Computer System
Chapter 2 - Learning the Basics
Chapter 3 - Monitor Overview
Part 2 Working with Monitor
Chapter 4 - File and Screen Menus
Chapter 5 - Comm Menu
Chapter 6 - DataLog Menu
Chapter 7 - Support Menu
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Part 3 HVAC Applications
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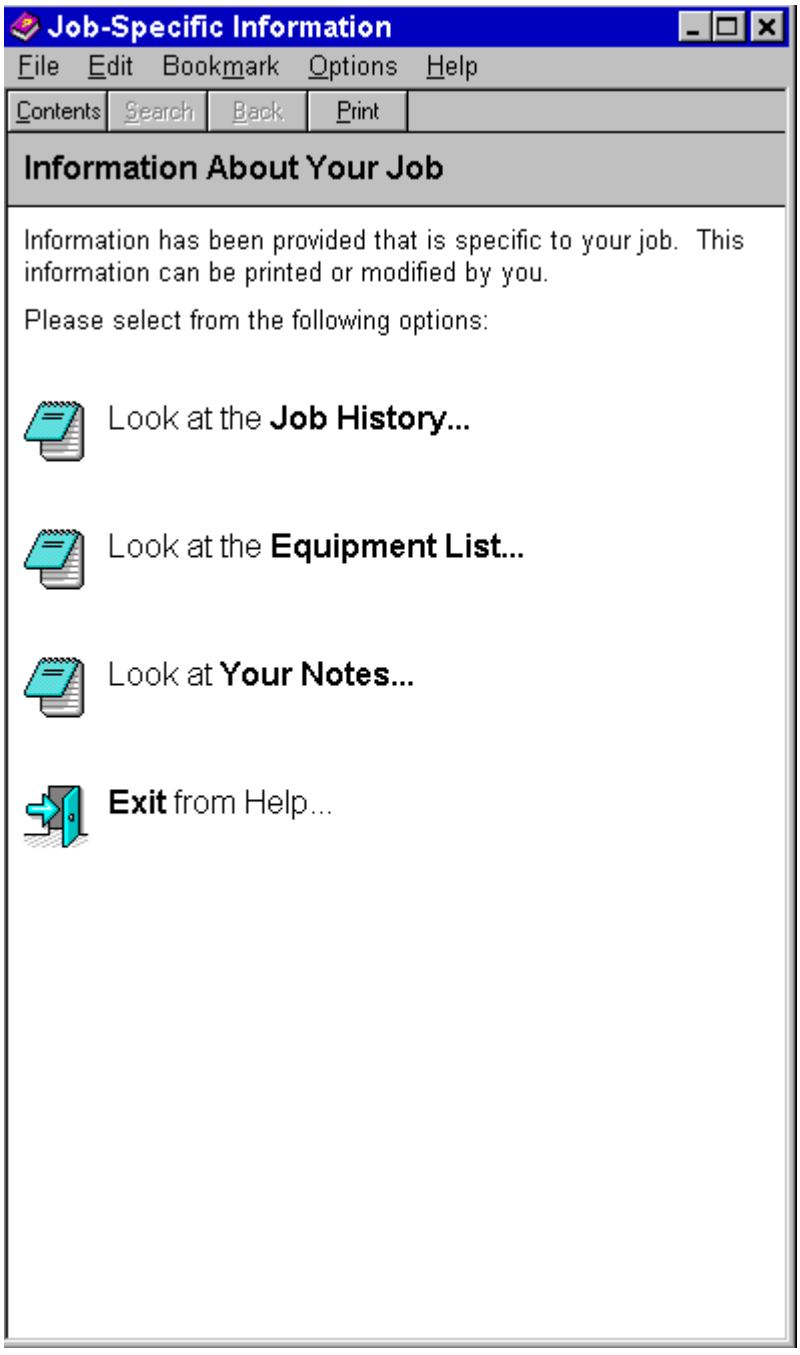
Help on Application #x

For each HVAC application there will be provided specific on-line help text. To access this follow the instructions given above for ***Help on MicroTech Monitor.***

Help on YOURJOB

Every software package release will be provided with a help file that is specific to that particular job.

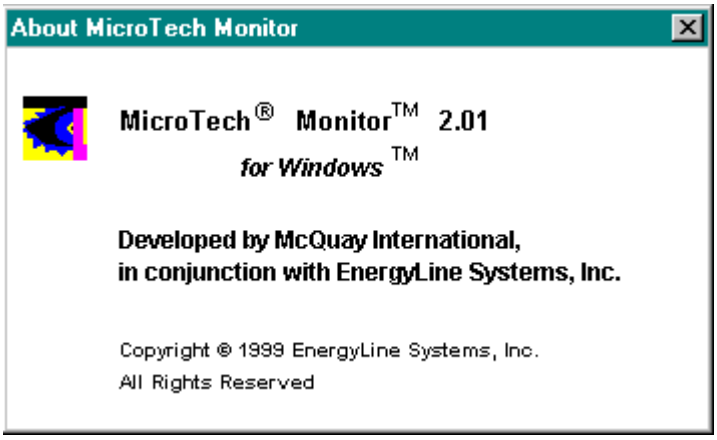
Selecting this option will open the "Job Specific Information" dialog box. This will appear in top right region of the desktop.


Job-Specific Information
File Edit Bookmark Options Help
Contents Search Back Print
Information About Your Job
Information has been provided that is specific to your job. This information can be printed or modified by you.
Please select from the following options:
Look at the Job History...
Look at the Equipment List...
Look at Your Notes...
Exit from Help...

This will contain information relating to the Job History, the Equipment List, and any notes that the user wishes to maintain with the job. Selecting any of these is accomplished by positioning the selection cursor over the appropriate icon and clicking with the left mouse button. The normal cursor symbol will change to a symbol whenever you are over an appropriate icon.

About MicroTech Monitor

About MicroTech Monitor will display the "About MicroTech **Monitor**" dialog box that gives information about your copy of **Monitor** including the version number; and the copyright, legal, and licensing notices.



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Appendix A

Communications Errors

Each MicroTech controller has two independent data channels used for communications. Each channel is software configurable as a serial asynchronous port for direct connection to personal computers or modems (data terminal device {TTY}), or as a network port for the interconnection of controllers. Each channel is also hardware configurable as either an RS232C or an RS422/485 compatible port I either case communications is always initiated at a designated port. All other ports are designated to respond to requests.

In the case of the serial port connection, the TTY device external to the controller whether it be a personal computer, modem, or BAS (Building Automation System) gateway, will almost always initiate communications with a controller as a user request. The port on the MicroTech controller will be the receiving device.

In the case of a network port connection, one (and only one) controller is designated as the “master”. All other controllers are designated as “slaves”. The master is the transmitting device. The slave is the receiving device. In all cases network communications is initiated by the master either through the automatic round-robin polling of its slaves for response and/or transaction requests or by performing a direct communications transaction with a specific slave.

Whenever a controller fails to respond-to or acknowledge a communications request or poll, the nature of the request and the address of the slave being communicated with is recorded in reserved memory locations for the purpose of tracking communications errors. In addition when a communications packet is received in error (due to invalid data, incorrect structure, or an invalid checksum), the packet is ignored , and the type of request is recorded in memory. The later will occur in any controller that detects the corrupted data packet even if it the packet is not addressed to it. This information forms the basis for communications error logging performed by **Monitor** in the Network Diagnostic Status screen.

Depending on the family of controller (Model 100 or 200) there are different capabilities to record and store the communications error information.

Model 100 Capabilities

The Model 100 controller is limited in its ability to record both transmit and receive errors separately. For a model 100 controller there are only two memory locations that record communications errors.

Memory Location	Function
Slave Number	Records the slave number of the controller being accessed when a transmit error occurs.
Receive/Transmit Errors	Stores information about communications errors. Only the most recent error is recorded. If a new error occurs it overwrites the old one without saving it.

Model 200 Capabilities

The Model 200 controller has a better capability to record both transmit and receive errors separately. For a model 200 controller there are six memory locations that record communications errors.

Memory Location	Function
Receive Error Number	Stores the total number of receive errors that have been encountered by the controller since the last reset or the last power-up.
First Receive Error	Stores the information identifying the first receive error that has been encountered by the controller since the last reset or the last power-up.
Transmit Error Number	Stores the total number of transmit errors that have been encountered by the controller since the last reset or the last power-up.
First Transmit Error	Stores the information identifying the first transmit error that has been encountered by the controller since the last reset or the last power-up.
First Transmit Error Destination Address	Two Memory locations to store the high and low address byte of the controller that was being communicated with when the first transmit error occurred.

Network Diagnostics

Network Diagnostics can be used to troubleshoot network communications problems that result in controllers failing to communicate with each other or with **Monitor**. The information read includes the model identifier, the communications error memory locations, and the number of slaves if any that have been assigned to each controller.

When set to perform a full network scan there is an attempt to read information from the level one controller (address 00.00). **Monitor** uses the number of slaves to determine the address of the level two controllers it will attempt to read next. **An** attempt to read information from each level two controller commences. If any slaves have been assigned to the level two controller **Monitor** uses the number to determine the address of the level three controllers it will attempt to read next. An attempt to read information from each level three controller is finally initiated.

During the Network Diagnostics function, **Monitor** also reads the appropriate memory locations in the model 100 and 200 controllers and displays any communications errors that are stored within. These errors can then be used to troubleshoot network communications problems. There are eleven types of communications errors that can be logged during network communications. These errors can either be receive or transmit errors or simply a non-response.

A transmit error in all cases is a time-out error. For some reason a unit has failed to get a response to a read or write request after waiting a pre-determined time period. Transmit errors will only be logged by the controller making the request. A receive error occurs when the information packet being sent through the network is received by any controller with a corrupted structure.

Error Message	Description and Possible Cause of the Error
Does not respond	This occurs when **Monitor** is unable to communicate with the selected controller. This may be due to loss of power at the unit, missing or incorrect wiring, or improper addressing of the unit controller.
Ack fails	A unit has failed to acknowledge its address. This will occur upon unit initialization of a level 3 controller. This type of error is caused when the level 2 master has not yet polled the level 3 slave to give it its upper address byte. (see Appendix 3, Network Architecture and Addressing).
Polling fails	A slave controller has failed to respond to a poll by the master controller. This may be due to the slave controller being un-powered, unconnected, nonexistent, or mis-addressed.
Master request fails	A slave controller has failed to return information to a master controller's request.
Master response fails	A master controller response to a slave controller's request has failed..
Slave request fails	A slave controller response to a master controller 's request has failed.
Slave command fails	A slave controller's attempt to write data to another controller fails.
Slave response fails	A slave fails to respond to a master controller's request.
Negative Acknowledgment	A terminal device data packet is corrupt resulting in a negative acknowledgment being sent. The structure of the data packet (password, request structure, needs to be examined)
Terminal response fails	A terminal device fails to return requested data to the requesting controller (TTY port error).
Terminal command fails	A write from a terminal device to a controller fails (TTY port error).
Terminal request fails	A read from a terminal device to a controller fails (TTY port error).

In all cases the "Does not respond" errors should be remedied first. After the network is fully communicating, select "Clear communication error if found" and perform a single pass to clear the memory buffers in each controller. De-select "Clear communication error if found" and perform either a single pass or loop. Any errors are then new errors and need to be investigated further. Consult with a *Daikin factory trained user.*

Appendix B

Alarm/Event Reporting

Alarm/Event reporting is a two step process that requires a MicroTech Network Master Panel (NMP) and the MicroTech **Monitor** for Windows Version 1.0 application.

Alarm Collection

The Alarm Collection feature is an exclusive property of the MicroTech Network Master Panel (NMP). As part of its application program the NMP continuously scans all of its communication slaves to retrieve alarms if and when they occur. The information that is collected consists of:

- The network address of the controller that experienced the alarm
- Time and date the alarm was received by the NMP
- The alarm condition
- The status of the alarm (active or cleared)

The NMP stores this information in a designated memory buffer. This buffer can store up to 63 records. (Note that an alarm condition that is recorded as both active and cleared requires two records). Once the buffer is full it begins overwriting the oldest alarm record.

The buffer is indexed by two pointers. The first of these designates where the NMP should write the next alarm record to. As a new alarm is received it is stored in the next available location and the pointer is incremented to the next record location.

The second pointer designates where **Monitor** should begin reading new alarms from. As alarms are read by **Monitor**, with a direct logging mode configuration, the pointer is incremented to the next record location. When both of the alarm buffer pointers match it is assumed that all of the available alarms have been read.

Event Collection

The Event Collection feature is an exclusive property of the MicroTech Network Master Panel (NMP). An event is a non-critical occurrence in a MicroTech controller that may require notification. The standard NMP program collects tenant override start times, logs electrical metering history, and records whenever the alarm buffer is cleared as events. Customer specified events may be requested as program specials as well. The information that is collected consists of:

- The network address of the controller that experienced the event.
- Time and date the event was received by the NMP
- The event condition

The NMP stores this information in designated memory buffers. There is a buffer for standard network events and separate buffers for electrical metering history. Each buffer is indexed by two pointers. The first of these designates where the NMP should write the next event record to. As a new event is received it is stored in the next available location and the pointer is incremented to the next record location.

The second pointer designates where **Monitor** should begin reading new events from. As events are read by **Monitor**, with a direct logging mode configuration, the pointer is incremented to the next record location. When both of the event buffer pointers match it is assumed that all of the available events have been read.

Alarm/Event Logging

Monitor can be configured for a Remote Logging mode or a Direct Logging mode. To choose the remote logging mode check the "Remote Logging" box in the *Alarm/Event Setup* dialog box of the *DataLog/ Setup Alarms/Events* menu. The default choice of leaving the box unchecked configures **Monitor** for the direct logging mode.

Direct Logging Mode

Effects on Alarm Logging

In the direct logging mode the alarm buffer in the NMP is initially read to collect all of the alarm information contained within. Since the alarm buffer capacity is limited to 63 alarm conditions, **Monitor** may initially read anywhere between zero and 63 alarm conditions. After the initial read the alarm buffer is checked every 15 seconds for new alarms. If the two alarm buffer pointers match no new alarms are read. If the alarm buffer pointers do not match **Monitor** reads the information in the alarm table and increments the second pointer continuing until all available alarms have been read. **Monitor** will only read up to five alarm conditions per scan so as not to tie up other data processing features. If no new alarms occur in the next 15 seconds the pointers do not change (they match from the previous operation) and no new alarms are read.

In addition the user is allowed to tag any and all alarms as being acknowledged as a means of recording and tracking.

Effects on Event Logging

In the direct logging mode each defined event buffer's pointers are checked initially and thereafter following a predetermined time. The network event buffer is checked every 30 seconds while the electrical metering buffers are checked every hour. If the event pointers match no new events are read. If the event pointers do not match **Monitor** reads the events and processes them as determined by the *Alarm/Event* setup.

Remote Logging Mode

Effects on Alarm Logging

In the remote logging mode the alarm buffer in the NMP is initially read to collect all of the alarm information contained within. Since the alarm buffer capacity is limited to 63 alarm conditions, **Monitor** may initially read anywhere between zero and 63 alarm conditions. After the initial read the alarm buffer is checked every 15 seconds for new alarms. If the two alarm buffer pointers match no new alarms are read. If the alarm buffer pointers do not match **Monitor** reads the information in the alarm buffer until all available alarms have been read. **Monitor** will only read up to five alarm conditions per scan so as not to tie up other data processing features. The second alarm buffer pointer is **not** incremented as alarms are read. If no new alarms occur within the next 15 seconds the pointers may or may not have changed. This is dependent upon another user being connected to the network with a **Monitor** in the direct logging mode as previously described.

It is possible that a **Monitor** in the remote logging mode only reads the buffer during initialization an is unable to log new alarms as they occur. This would occur if a **Monitor** in the direct logging mode reads the alarm buffer and increments the alarm buffer pointers so that they always match when checked by **Monitor** in the remote logging mode.

The user is **not** allowed to tag any alarms as being acknowledged.

Effects on Event Logging

Events are not read by **Monitor** when in the remote logging mode.

Appendix C

Network Architecture and Addressing

An address consists of 4 hexadecimal characters and is separated in the middle by a period. Each set of 2 characters is referred to as 1 **byte**. The byte to the left of the period is called the high address byte. The byte to the right of the period is called the low address byte.

Each MicroTech controller has a set of 2 hexadecimal address switches. Along with those switches and at what level (in a 3 level architecture) the controller is assigned the network address can be determined by the following.

Network Level	High Address Byte	Low Address Byte	Range
Level 1	Assumed Zero	Assumed Zero	00.00
Level 2	Value of Switches	Assumed Zero	01.00 - 40.00
Level 3	Read From Level 2	Value of Switches	01.01 - 40.40

As well the level of the controller can be determined by knowing its network address.

A special case for a network address is using 00.FF. This is an indication to **Monitor** that the controller from which it is to receive information is the one it is directly connected to. This address may be substituted for the actual network address whenever the requested communication is with the directly connected controller.

Both ***Read/Write*** and ***Download*** require the input of data addresses and controller addresses as part of their setup.

The data address may be of a single memory location or a range of locations. It should be entered using one of the following acceptable formats or a combination of formats separated by commas.

Format	Example	Result
mmmm	0400	0400
mmmm-nnnn	0400-0405	0400,0401,0402,0403,0404,0405
mmmm - nnn	0400-405	0400,0401,0402,0403,0404,0405
mmmm-nn	0400-05	0400,0401,0402,0403,0404,0405
mmmm-n	0400-5	0400,0401,0402,0403,0404,0405
mmmm,nnnn	0400,0405	0400,,0405

The controller address may be that of single controller or a range of controllers. It should be entered using one of the following acceptable formats or a combination of formats separated by commas.

Format	Example	Result
mm.nn	01.01	01.01
mm-nn.pp	01-03.01	01.01,02.01,03.01
mm.nn-pp	01.01-03	01.01,01.02,01.03
mm-nn.pp-qq	01-03.01-03	01.01,01.02,01.03,02.01,02.02,02.03,03.01,03.02,03.03
mm.nn-pp.qq	01.01-03.03	01.01,01.02,01.03,02.01,02.02,02.03,03.01,03.02,03.03
mm.nn,pp.qq	01.01,03.03	01.01,03.03

Appendix D

DDE Links

Dynamic Data Exchange (DDE) is a facility provided by Windows 3.1 to allow two or more applications to hold a data exchange conversation. One application will maintain and manage the original information. This is called the server. Applications that have the ability to receive the information are called clients. A server to client conversation is referred to as a link. If information is updated automatically into the client, a hot link is established. If updating of information at the client is done only when it is requested by the client, a warm (or cold) link is established.

Only applications that support DDE can be used to create a DDE link. The link is normally a one way conversation. However, once a link is established the DDE facility allows for transferring data from the client to the server as well. For DDE links to function, both the server and client(s) must be active.

A DDE link is a conversation between two or more active applications. It is the client that requests this conversation by sending out a message to the target server. The message identifies the server application and what is to be the topic of the conversation. Using this message structure a DDE link can be established. The remaining element is a list of the data items that need to be exchanged through the conversation.

To be more specific, a DDE message contains the following elements:

Element	Description
Application Name	This is the DDE name of the server application that was given to it by its programmer. This is also referred to as the Type.
Topic	This is the file name that contains the range of linked data. This is also referred to as the Source File.
Data Item	This identifies the particular group of data that has been linked. This is also referred to as the Item.

There are two methods used to generate a DDE message in a client.

Method 1 - Copy and Paste Link

The copy and paste link method for establishing a DDE link is the most common and most uncomplicated method. The information that is to be linked is copied to the clipboard from the server. Besides copying the data to the clipboard, the DDE message format is also copied in the form:

Application Name|Topic!Data Item

where the Application Name is separated from the topic by a pipe character (|), and the topic is separated from the data item by an exclamation point (!).

Once the information is copied it can be pasted into the client using the "Paste Link" or "Paste Special" command option of the Edit menu.

Method 2 - Manually Generating the DDE Message

Some applications do not provide a "Paste Link" command option, while others do but also support manually generating DDE messages. EXCEL for Windows possesses the latter property. Because the cut and paste link method relies on what has been last copied into the clipboard, it is sometimes necessary to manually generate DDE messages in order to create multiple links more easily. This method can be used as long as the server is active and is not dependent upon the copy command nor the contents of the clipboard

A manual DDE message consists of the same elements described above. It is up to the person setting it up , however, to identify those elements and insert them into the client There are many ways to insert this information. Consult the user's manual for the application you are using. For EXCEL for Windows the following method is employed:

1. Identify the Application Name, Topic, and Data Item for the link to be established.
2. Select a range of cells that will hold the linked data. This is dependent upon the amount of data that will be transferred from the server application.
3. Enter the DDE message using the following format:

   ='Application Name'|Topic!'Data Item'

   Once the information is typed in, press **Ctrl+Shift+Enter** to effectively establish the link to the server application. Note that pressing only the **Enter** key will establish a link to a single data item only and not a full range of items.

   Note that the Application Name and the Data Item are bound by single quotation marks. This is to identify them to EXCEL as not following standard EXCEL naming conventions.

Setting up a Monitor DDE Link

Monitor does not fully support DDE. It does, however, provide for exporting selected information using the DDE facility. **Monitor** uses its trend log function to provide data point that can be exported using the DDE facility. Following the setup procedures found in Chapter 6 - DataLog Menu up to six trend log groups can be defined. Within each group up to sixteen data points can be selected. A total of 96 data points can be selected. These data points can be exported using the DDE facility.

Once a trend log group is active, its data points are made available to the DDE facility. Any client that requests the appropriate information for any or all active groups will receive it.

A DDE message for **Monitor** has the following structure:

Application Name = MicroTech **Monitor** < a space is included in the name>

Topic = XXXX <where XXXX is the name of the trend log group>

Data Item = DL01:16

For an EXCEL for Windows client the DDE message would appear as:

='MicroTech **Monitor**'|XXXX!'DL01:16'